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AN ANALYSIS OF THE STATUS OF AND FACTORS INFLUENCING MOBILITY OF THE AIR FORCE CIVILIAN LOGISTICIAN PART I

THESIS

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PART I

THESIS

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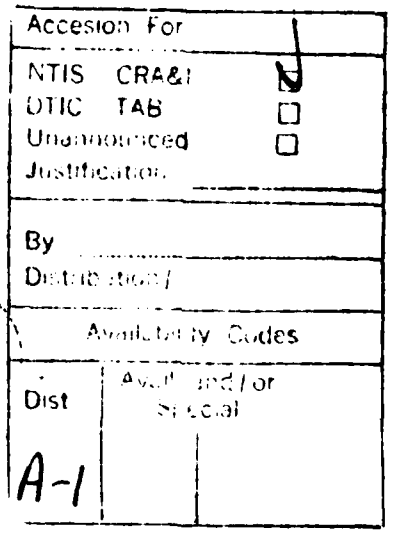

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And to all my friends and classmates, "thank you" for your words of encouragement during the dark times, and your friendship and company during the good times. I couldn't have survived without your love and support.

— Carol J. Felici

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Abstract

Senior military managers need the ability to move manpower resources where they are most needed. Senior Air Force managers have voiced concern that the civilian work force is becoming less mobile. The absence of a mobile civilian work force may inhibit and constrain the ability of Air Force leaders to efficiently employ public resources to accomplish the Air Force mission.

A four-phase research effort was designed to locate information about the mobility of civilian logisticians, to develop a means of gathering this information, and to present the data in a readily understood and useful manner. During Phase One, specific research objectives were developed to describe the extent of mobility of Air Force civilian logisticians, to describe the patterns of their mobility, and to identify the factors which influence their mobility decisions; and to solicit the opinions of civilian logisticians about the subject of geographic mobility. A complex search of the literature and government personnel data bases indicated that the required data was not available.

During Phase Two, a method for accomplishing the objectives was developed. A mailed survey questionnaire was determined to be the most economical means of gathering

the required data. This questionnaire was developed, revised, and determined to be valid and reliable. The data collection plan included detailed plans for administering the questionnaire during Phase Three, and the measurement and display techniques which will be used during Phase Four to analyze and present the data.

The four phases represent a coordinated and linked research cycle. This research has developed the foundation for all four phases but has completed only Phases One and Two. Completion of Phases Three and Four will be accomplished and reported in An Analysis of the Status of the Factors Influencing Mobility of the Air Force Civilian Logistician, Part II.

AN ANALYSIS OF THE STATUS OF AND FACTORS INFLUENCING MOBILITY OF THE AIR FORCE CIVILIAN LOGISTICIAN

PART I

I. Introduction

General Issue

Senior military managers, who have the ability to move manpower where it is most needed, are able to efficiently employ public resources. In recent times, when news headlines have increased public awareness about how tax dollars are spent, the Air Force has had to demonstrate that public money is wisely spent. The Air Force operates within the realities of the federal budget and must legally, and morally, strive to allocate manpower resources to perform the Air Force mission, "fly, fight, and win," and do so at the highest possible level of national defense. An economic allocation of manpower resources puts those resources where they are most needed to support the mission. A geographically mobile work force allows the Air Force to effectively utilize manpower resources in matching complex jobs with the best qualified people.

Today, civilian employees comprise a significant portion of the Department of Defense (DOD) "total force"

manning structure. In 1983, Lawrence J. Korb, then Assistant Secretary of Defense/Manpower and Reserve Affairs, said the efficient use of critical civilian manpower resources is necessary for accomplishment of defense program objectives (45:6). Korb also stated ". . . the department could meet neither its peacetime nor wartime missions without the skills and effort of its federal civilian work force" (45:5).

Military members of the total force are required by oath and orders to move as their leaders designate, but Air Force civilian employees must volunteer for any assignments involving geographic mobility. Recently, concern has been voiced by senior Air Force managers that the civilian work force is becoming less mobile. The absence of a mobile civilian work force may inhibit and constrain the ability of Air Force leaders to accomplish the Air Force mission.

If Air Force civilians have become less mobile, then perhaps this is a reflection of a trend within the overall U.S. work force. America has long been known as a nation of migrants (14:94). Midsummer has traditionally been the time of year when one out of five Americans picked up their lives and moved to greener pastures. Growing industries easily filled employee shortages and workers readily found jobs (14:94).

> Worker mobility has long been one of the strengths of the U.S. economy because of the freedom of employers to hire and fire and the freedom of workers to move easily from company to company and around the country in search of jobs. (14:94)

However, during the 1970s, the percentage of the population changing addresses annually decreased from over 20 percent to less than 17 percent. Many companies, which have depended upon labor mobility when recruiting, developing, motivating, and promoting employees, may face major problems in the future (6:58). Firms which have used mobility to fill vacancies and improve job knowledge, must now carefully evaluate each move.

> Even IBM (employees say the initials stand for "I've Been Moved") has cut down on moves. About 3% of IBM's work force is moved annually now, compared with 5% in the mid-1970s. (60:166)

Cris Collie, executive vice president of the Employee Relocation Council, states that companies are becoming more sensitive to the needs of employees and their families. Companies are anxious to understand the circumstances causing a reluctance of employees to move. American firms now play an increasing role in trying to ease the impact of necessary moves on their employees. Their concern is evidenced by the existence of organizations such as the Employee Relocation Council, an association of 1,000 major corporations and 8,000 relocation service firms (8:68).

If the mobility of Air Force civilians is changing with the trends in the general population, then senior

Air Force managers may have equal cause for concern. If Air Force civilians are less likely to accept assignments involving geographic mobility, then managers have less ability to put resources where they are most needed. Senior Air Force managers should benefit by having information about the relationship of geographic mobility and their civilian employees. Just as managers in many U.S. corporations seek information about the impact of organizational moves on their employees, Air Force leaders could utilize the same type of vital information. A noted organizational behavioralist, Edgar H. Schein, urges

> . . . any human resource planning and development system must attempt to match the needs of the organization with those of the individual . . . those needs derive not only from the individual's working life, but also from the interaction within the total "life space" of issues of work, family and self-development. (69:17)

Clearly, the relationship between changing mobility trends and Air Force civilian employees should be explored to provide Air Force managers with the information necessary to effectively allocate manpower resources.

Specific Problem

While the Air Force is concerned about possessing a mobile civilian work force, top Air Force managers do not have information about the relationship of geographic mobility and their civilian employees. A preliminary search of the literature found no current measure of civilian work force mobility. Of primary concern to this

research was information about the mobility of Air Force civilian logisticians. Within the Air Force, civilians perform many vital and necessary jobs, but the majority of civilian employees are concerned with the business of logistic support of operational military forces. The Department of Defense Joint Chiefs of Staff Publication 1, defines logistics to be

> . . . the science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations which deal with: a. design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; b. movement, evacuation and hospitalization of personnel; c. acquisition or construction, maintenance, operation, and disposition of facilities; and d. acquisition or furnishing of services. (2:401)

A civilian logistician is a professional Air Force civilian employed in planning and executing these functions of logistics. The complex task of managing Air Force logistics affairs requires broadly-based logistics generalists who have the necessary background required to understand the interrelationships of today's logistics arena. The Air Force has developed a logistics civilian career program, the Logistics Civilian Career Enhancement Program (LCCEP), to help prepare logisticians for these responsibilities. Integral parts of this career program are education, training, and career broadening assignments, all involving voluntary mobility of program registrants.

Civilian logisticians provide Air Force managers with a stable manpower pool from which they fill vacancies

in organizations performing logistics functions. Conditions or factors which affect the geographic mobility of this manpower pool may also impact the ability of Air Force managers to fill vacancies with the best qualified civilian logisticians.

Research Objectives

In the following chapter, a review of the literature shows that geographic mobility is a concern of employers in the general U.S. population as well as within the Air Force. The problems surrounding the declining mobility of American workers are described in the literature, but no current studies explore the mobility of Air Force civilians, especially civilian logisticians.

The goal of this research effort was to locate information about the mobility of civilian logisticians, to develop a means of gathering this information that was both valid and reliable, and to present the data in a readily understood and useful manner. At a minimum, the data collected was required to satisfy the following research objectives:

1. To describe the extent of mobility of Air Force civilian logisticians.

2. To describe the patterns of mobility of Air Force civilian logisticians.

3. To identify the factors which influence the mobility decisions of Air Force civilian logisticians.

4. To solicit the opinions of Air Force civilian logisticians about the subject of geographic mobility.

Research Questions

In order to complete the research objectives it is necessary to broach and answer specific research questions. These questions appear in Chapter III, Research Design and Methodology. The process of developing, and answering these questions, along with their evaluation criteria, is provided in the Data Collection Plan section of Chapter III.

Research Scope and Limitations

The dictionary defines mobility as "the movement of people in a population, as from place to place, from job to job, or from one social class to another" (67:857). For the purposes of this research, mobility is defined as the movement of a civilian logistician from one geographic location to another geographic location as the result of a reassignment, promotion, or transfer of positions within the Air Force.

A Four-Phase Approach. To comprehensively explore the subject of civilian mobility, a four-phase approach was developed. Phase One involved development of the

research objectives, the research questions, and this four-phase research design. Phase One also included a search for documentation of mobility issues within the Air Force and the U.S. population at large, a review of Air Force data sources, i.e., computer systems containing personnel information, and an evaluation of the usefulness of these sources. The purpose of Phase One was to define the problems surrounding the mobility of Air Force civilian logisticians, determine what was currently known about this mobility, and to determine if the research objectives could be satisfied based upon available data.

Phase Two developed the data collection plan. The purpose of this phase was to determine how to gather the data that could satisfy the research objectives. The data collection plan determined what information was actually needed to answer the research questions and where to gather that data. The plan then outlined a method for collecting this data which required development and testing of the survey instrument, a mailed survey questionnaire.

Phase Three will be the actual collection of data, as outlined by the data collection plan. The collected data must be both valid (answer the research questions) and reliable (provide consistent results) to accurately describe the status and factors influencing the mobility of civilian logisticians.

Phase Four will be the actual analysis of the collected data. The analysis will be designed to provide useful information to the Air Force and to interested parties. The analysis will consist of statistical analyses, graphical displays of the various measures and patterns of mobility, and a presentation of the opinions and concerns of the respondents in such a way as to make the information readily understandable.

While the four phases are sequential they are also interconnected and interrelated. The research questions demand specific data that the collection plan must provide. The method of analysis and the display of the resulting data must support the research questions developed in Phase One. Phases One and Two could not be completed until adequately detailed plans had been developed for the completion of Phases Three and Four. Therefore, the four phases represent a coordinated and linked research cycle. This research has developed the foundation for all four phases but has completed only Phases One and Two.

Scope. This research effort sought to provide information about the mobility of mid-level Air Force civilian logisticians rather than the population of civilian employees as a whole for a number of reasons. First, there are too many civilian employees (249,000) to include in a single study; and second, a substantial

percentage (109,000, or 44 percent) of the civilians work in logistics-related areas within the Air Force Logistics and Systems Commands (1:182). Third, mid-level logisticians in pay grade levels GS-11 to GS-15 (from the overall range of GS-1 to GS-18) are managers for whom geographic reassignment is a real possibility. Fourth, a career program currently exists for logisticians. The people enrolled in this career program can be readily identified by computer search methods. And, finally, the researcher had knowledge of and more access to logisticians than to any other group of Air Force civilians.

Information concerning mobility will be sought from a representative sample from the population of civilian logisticians. This sample will be drawn from the population by random selection of individual personnel currently assigned to the related logistic functional areas recognized by the LCCEP career program. A representative sample can be insured because within the Air Force automated civilian personnel data system, a civilian performing as a mid-level logistics manager can be identified by grade level (pay status) and occupational series (a numerical designation indicating the primary function of the job).

Information gathered from this sample can be measured and evaluated as described in the research methodology, Chapter III. If the sample is randomly selected from the population, then inferences derived from the

sample data can be used to describe the general population. In this way, the data necessary to complete the research objectives can be obtained, evaluated and presented to Air Force managers in a meaningful way.

Limitations. A literature review established that little data existed concerning the extent of mobility of Air Force civilian logisticians. No patterns of mobility, or the factors influencing mobility, were found in existing data bases. Therefore, a data generation and collection method was required.

Even if the members of the population could have been identified in the existing data bases, some form of personal interview would still be required to determine what factors impacted the mobility decisions of the logisticians. This effort would require administration of some form of survey questionnaire. The best of all possible methods for gathering information about civilian logisticians would have been to personally interview each civilian logistician. This census data would then accurately describe the mobility status and concerns of the population. If a common pattern was identified, then deviations from the common pattern could be analyzed.

After considering the time required for a census survey, the geographic dispersion of the population, and the expense of interviewing thousands of civilian

logisticians in person, the telephone or mail survey became the only feasible choices. It was unrealistic to consider placing thousands of telephone calls to civilian logisticians so the planned administration of the survey questionnaire was limited to a simple random sample of the population. However, because of the structure of the population by occupational series and grade level, the sample size computed was 3,000. Again it was unrealistic to even consider placing 3,000 telephone calls involving initial contacts, messages, and call-backs so all but the mailed survey questionnaire were eliminated from consideration.

A limitation of the mailed questionnaire is its dependence upon the accuracy of self-reporting and the response rate achieved. Only a valid, reliable survey questionnaire could justify the massive expense of time and money on the part of the research team and the time required of the respondents.

The last limitation was previously stated in the explanation of the four-phase approach to this research. It was determined by the researcher, in concert with her research advisors, that due to time constraints of the thesis program, the scope of this research effort would include planning for all four of the phases but would complete only Phases One and Two, the literature review and preparation of the survey questionnaire. Completion of Phases Three and Four would be part of a follow-on effort.

That effort will be entitled An Analysis of the Status of and Factors Influencing Mobility of the Air Force Civilian Logistician, Part II.

Potential Benefits of the Research

This research can provide useful information to senior Air Force managers. It has been stated previously in this chapter, that changes in the degree of mobility of employees is a concern of many managers in major U.S. corporations. These corporate managers are becoming more sensitive to the needs of their employees and they are attempting to better understand the reluctance of their employees to make organizational moves. If civilian logisticians exhibit this same reluctance to move, then senior Air Force leaders may also be constrained when trying to plan and utilize civilian logistician manpower resources. A lower degree of mobility may impair managers' ability to move the right people into the right jobs. No measure of civilian mobility is currently available to Air Force managers and policy makers. Likewise, little is currently known about the status and factors which influence the mobility decision of Air Force civilian logisticians. Therefore, this research can help fill that gap of knowledge by providing information about the extent of mobility of Air Force civilian logisticians, the patterns of mobility of civilian logisticians, and the factors which influence the mobility decisions of civilian logisticians.

In addition, this research can provide senior Air Force managers with the currently held opinions of civilian logisticians about the value and need for geographic mobility. These opinions, especially if they are commonly held within the population, might enable Air Force decision makers to tailor or develop programs capitalizing on these beliefs. Finally, if the opinions of the civilian logisticians concerning the need for and value of geographic mobility are not in concert with the current thinking of senior Air Force managers, this research may serve as a medium for conveying these differences. Once these differences are recognized, policies, incentives, or education may be modified to produce the desired results.

II. Background

The Literature Review

The purpose of a literature search is to substantiate a body of knowledge, support the methodology, and help develop reasonable conclusions and recommendations. During Phase One of this research effort, a comprehensive literature search was performed. It was hoped that the literature would provide a firm base of knowledge about mobility issues. Specifically, having information about the extent of mobility of civilian logisticians would be beneficial to senior Air Force managers who have to plan and employ manpower resources efficiently.

Every reasonable attempt was made to properly identify existing reports, studies, and journal articles which would shed light on the subject. The search was centered on the following topics: geographic mobility, civilian employees, logisticians, labor mobility, relocation, and transfer.

An on-line computer search was made for documents listed through the Defense Technical Information Center (DTIC), National Aeronautics and Space Administration's NASA/RECON system, and the DIALOG Information Retrieval Service. In addition, a telephone request was made for documents from the Defense Logistics Studies Information

Exchange (DLSIE). DTIC is a repository for scientific and technical information about Department of Defense personnel, defense contractors, and other U.S. Government agency personnel and their contractors. The NASA/RECON system contains documents with emphasis on the world's aviation and aerospace literature. The DIALOG Information Retrieval Service is made up of approximately 200 data bases offering subject coverage in science, technology, social sciences, economics, and current events. DIALOG is a computer service available by subscription to anyone with access to a computer network. DLSIE is a repository for a wide variety of logistics studies performed by Defense schools, organizations, and contractors. DTIC, the NASA/RECON system, and DLSIE are government systems with access at operating locations within U.S. Government organizations.

Each of the on-line systems was searched by input of keywords used to identify the documents contained within the systems. It was reasonable to assume that if the right keyword was searched, access would be gained to every document identified by that keyword. Combinations of keywords may also be used to locate documents. In this way, it is possible to limit the scope of the search. For example, rather than look at all documents using the keyword "career development," it is possible to add the keyword "civilian" and limit the search to only those documents

which include references to both career development and civilians or to the career development of civilians.

The original DTIC search performed for this research sought information about personnel career programs for Air Force civilian logisticians and utilized the following keywords: personnel management, personnel (including civilian, executives, government and employees), personnel development (including careers), logistics management, management training, and management (including public administration). The results of this search indicated that not a single report related to career programs for Air Force civilians or civilian logisticians had been cataloged.

Later DTIC searches concentrated on the transfer, careers, development, and mobility of civilians and were performed using the following combinations of keywords: (1) civilian personnel, promotion (advancement), personnel development, and careers; (2) civilian personnel and Air Force; (3) civilian personnel, selection, personnel selection; (4) personnel, logistics, development, training, progression, enhancement; (5) personnel, development, logistics, progression, enhancement, and civilian; (6) civilian, employee, mobile; and (7) civilian, employee, logistician. These searches sought to find any references to geographic transfer of civilians for whatever purpose and through whatever program. Searches 1, 2, 4, and 5

yielded references to some 473 documents for which bibliographies were reviewed. From these bibliographies, only seven studies had either direct or indirect application to this research.

The NASA/RECON system was interrogated for information about the mobility of civilians. The research objectives were provided along with the definition of geographic mobility. The resulting bibliography contained twenty-four references but failed to yield any documents specific to this research.

The DIALOG search combined the keywords civilian, employee, relocate, transfer, and mobility. This search yielded fifty-seven references that combined employee and relocation and transfer and mobility. These fifty-seven references included general subject area information but no studies specific to Air Force civilian logisticians, transfer, or relocation mobility.

A DLSIE search was conducted by reviewing the Annual Department of Defense Bibliography of Logistics Studies and Related Documents. This search cross-referenced the keywords: civilian personnel with career management, executives, logistics management, logistics training, mobility, movement, manpower, personnel management, relocation, and transfer. From this search seven studies looked promising. However, one was a duplicate of a selected DTIC study; the other six were ordered from DLSIE

and reviewed. Only one of the six reports contained anything related specifically to the geographic mobility of Air Force civilians or civilian logisticians.

At the same time, a search was performed of the Air University Index to Military Periodicals using the following keywords: career programs, civil service, civilian employees, executives, household goods, human resources, logistics, management, manpower, mobility, movement, moving, personnel, promotion, relocation, selection, transfer, and turnover. This search yielded thirty-two references of which sixteen were reviewed in detail. Some background and career development information was found and was included in this report.

The Social Science Index, Business Periodicals Index, Personnel Management Abstracts Index, and Reader's Guide to Periodical Literature were also searched. The keywords used included: employee, executive relocation, government employees, labor mobility, labor statistics, labor studies, migration, mobility, occupational mobility, relocation, and United States Air Force. This search yielded some background information used in Chapters I and II, but few reports or articles specific to Air Force civilians, Air Force civilian logisticians, or the geographic mobility of either.

The researcher is confident that these searches of the literature would have uncovered any reports, studies,

journal articles, or general literature on the specific subject of the geographic mobility of Air Force civilian logistician. The general absence of specific mobility literature supports the importance of this research effort. Very little documentation exists in this research area.

What is Logistics?

To better understand why mobility of civilian logisticians is an issue worthy of concern, we must understand something about logistics and logisticians. In Chapter I, civilian logisticians were defined as Air Force civilian employees engaged in planning and executing the functions of logistics. But what is logistics? The dictionary defines logistics as "the branch of military science dealing with the procurement, maintenance, and movement of equipment, supplies, and personnel" (67:787). But this definition still doesn't tell us what logisticians are or what they do. According to Colonel Fred Gluck, USAF (Retired), "the responsibility of military logistics is to create and sustain some level of military capability" (33:23). Colonel Gluck observed the total military logistics objective was

> . . . to plan, integrate, and control the actions of a group of specialized activities in accomplishing an objective which is greater in scope and magnitude than each can achieve individually. (33:24)

Still, this does not tell us what activities/functions civilian logisticians might be engaged in.

Over the years, the field of logistics has become much broader as more and more government organizations and businesses recognize the total systems perspective of the logistics life cycle approach. Therefore in 1974, the Society of Logistics Engineers (SOLE) attempted to deal with the more dynamic nature of logistics by expanding their definition of logistics to:

> The art and science of management, engineering, and technical activities concerned with requirements, design, and supplying and maintaining resources to support objectives, plans, and operations. (15:6)

In her master's thesis, Dawn Wilson traced the historical definition of logistics and supported the opinion that requirements determination, acquisition, distribution, and maintenance are the generally accepted core functions of logistics (81:3-9). Lieutenant Colonel Richard V. Badalamente, defined these core functions of logistics as the following (9:2-6):

> Requirements determination. The process of determining what (in terms of quality and quantity) is needed, and where and when it is needed. The primary activities/functions involved in this process include the development of logistics support concepts, objectives, and strategies; development of computational methods and specific planning factors; capabilities assessment and economic analysis; and the development of funding, acquisition, and distribution priorities.
>
> Acquisition. The process of obtaining required resources. The primary activities/functions involved in this process are research and development, acquisition, contracting, program management, engineering development, testing, cost estimating and analysis, logistics support analysis, technical evaluation, and budgeting.
>
> Distribution. The process of getting resources to the place where they are needed. The primary

> activities/functions involved . . . are storage, issue, care and preservation, packing and packaging, movement, requisition, and disposal.
>
> Maintenance. The process of keeping materiel in a serviceable condition or restoring it to that condition when it fails or malfunctions. The primary activities/functions involved in this process are maintenance engineering, maintenance production, servicing, inspection, calibration, testing, repair, overhaul, modification, and reclamation.

Today's Air Force logistician must be able to plan, integrate and control the complex interrelationships between these various activities/functions of the logistics environment. With this complex technical environment, it is easy to understand why the Air Force seeks logisticians who are multi-organizational and have multi-functional experience and knowledge. Mobility assignments have traditionally been a means of helping logisticians achieve this broadened background. Over twenty years ago, Canady and Kenealy, in their master's thesis, recommended that a military logistics manager have a broadly-based background in terms of "education, logistics experience, managerial ability, and innate personal attributes" (19:57).

The emphasis on a broadly-based background continues today. According to the senior Air Force logistician, Deputy Chief of Staff/Logistics and Engineering, Lieutenant General Leo Marquez, the Air Force needs logisticians "who are able to manage the total logistics system comprised of its many sub-systems" (52:10). These logisticians must be able to effectively plan, coordinate, and

control the actions of complex logistics systems. Lieutenant General Marquez stated that the Air Force had developed too many managers who had only one specialty and that "these people have reached senior positions unprepared to manage the totality of our complex logistics system" (52:10). Education and training can help prepare logisticians for this responsibility. And job assignments involving geographic mobility can broaden the experience and knowledge of civilian logisticians by exposing them to additional operating and management enviromments (52:9-11). General Marquez more recently stated that the future objective of the logistics career program, LCCEP, should be to "crossflow people to create a broader base of capabilities in our Air Force civilian work force" (51:1). The future will bring a new set of circumstances where logisticians will have to deal with increasingly complex technology, real-time information capabilities, and constrained resources.

> All these factors serve notice that tomorrow's logisticians must have a much better, more complete understanding of the entire flow of our logistics processes. . . . The challenge to tomorrow's logistician is to become exactly that--a complete logistician. (51:1)

In 1975, to help produce these complete logisticians, the Air Force began addressing the development needs of its civilian employees by endorsing career programs for several functional area professions. These career programs

were base level supply; commissary; logistics; manpower; comptroller; engineering; safety, security, and special investigations; and information systems. Regular feature columns appearing in the professional magazines of these career areas (i.e., Air Force Comptroller and Air Force Journal of Logistics) have discussed development, initiation, and recruitment for each of these programs. While documentation for each of these career programs emphasizes mobility, little is known about the extent of mobility of members of the career groups such as the logisticians.

Even before a logistics career program was established, it was determined that participants would have to be prepared to transfer if they wanted to enjoy full benefits of a career program (23:50; 32:74; 59:7; 78:11). The need for a mobile logistics work force has been recognized by other sources within the Air Force. This need is exemplified by Air Force Regulation 40-303, Civilian Mobility, September 1976, in the paragraph, General Principles Regarding Mobility:

> a. The civilian work force traditionally provides stability and continuity in supplementing and complementing military personnel in fulfilling the Air Force mission. Throughout the Air Force a related need often exists that requires the best qualified employees to be reassigned without a change in grade, reduction in rank or compensation to vacant positions in other geographic locations. For this reason employees should think of career experience in more than one organization and location, particularly where high-grade positions are involved; commands should develop positive programs that encourage voluntary mobility on the part of employees.

b. Personnel with broad experience obtained in more than one Air Force activity should be available for reassignment to meet the needs of the service. Depth and breadth of employee experience are important factors in determining best qualified candidates for referral to Air Force organizations. To acquire this depth and breadth of experience for career progression and executive development purposes, employees may need to become involved in geographic relocations at various times during their career. Employees, therefore, occupying or aspiring to high-level responsibilities and positions must understand that special emphasis is placed on mobility; selection for mobility assignment is a recognition of, and tribute to, the person's skills, capability and potential. (26:1)

Therefore, recognizing the need to provide the Air Force with broadly-based civilian logisticians who are multi-organizational and have multi-functional experience and knowledge, the Air Force established the Logistics Civilian Career Enhancement Program (LCCEP). The purpose of the LCCEP is to "encourage and manage the development of logistics personnel to their fullest potential to meet the mission needs of the Air Force" (27:1-1).

The Logistics Civilian Career Enhancement Program

LCCEP was initiated in October 1980 under the management of the Office of Civilian Personnel Operations, now the Air Force Civilian Personnel Management Center (AFCPMC). The two goals of the program are: (1) to provide highly skilled professional civilian logisticians to meet current and future mission needs, and (2) to ensure that the individual selected for a position is among the best qualified in terms of specific job requirements and career

management needs. The LCCEP also seeks to identify high-potential personnel and provide them the managerial and technical experience, training, and geographic movement opportunities which will lead to higher-grade positions, and to encourage personnel in intermediate-level positions to broaden their experiences (27:1-2).

Civilian logisticians, in the grades GS-11 to GS-15 may voluntarily register for the LCCEP. Registrants are automatically considered for any logistics career essential position at the GS-12 to GS-15 level. Registrants must certify their availability for relocation in future job assignments; however, they are allowed to select their availability for the current location only.

The registrant receives job referrals for those locations at which they indicated availability. The registrant receives more job referrals when more locations are indicated. But the decision whether or not to be geographically mobile is not made lightly. Registrants are penalized for indicating a location as acceptable and then turning down subsequent job offers in that location. If registrants decline two job offers, they will not receive another job referral for one year. Registrants are allowed to update their geographic availability as their personal circumstances change.

The LCCEP is the only Air Force career development and position management program for civilian logisticians.

It has striven to provide individuals with valuable multi-functional, multi-occupational experience through the use of training and promotional opportunities. Therefore, the LCCEP has encouraged its members to participate in career-broadening assignments, professional enhancement programs, and long-term full-time training such as professional military education, professional continuing education, and graduate logistics programs at civilian institutions and the Air Force Institute of Technology (AFIT) (27:6-9). All of these opportunities involve some form of geographic mobility. While mobility away from the current location is not mandatory for registration in the LCCEP, mobility has been seen to enhance and expand logistics experience and increase the opportunities for full career development and career progression.

When working as designed, the LCCEP should provide the Air Force a pool of professional, capable, knowledgeable and well-qualified logisticians to fill top executive positions. These highly qualified LCCEP members are selected for the LCCEP Executive Force Cadre. This Cadre is a prime source of applicants to fill senior Air Force management positions (54:19; 56:15). All candidates for these top leadership positions must agree to accept geographic mobility assignments as an integral part of their employment agreements.

Every Air Force civilian logistician must make the decision whether or not to be geographically mobile. Each individual must select those locations for which he/she is available. Personal variables, the current job situation variables, and current job satisfaction all play an influential role in this mobility decision.

In recognition of the uncertainty facing qualified individuals considering geographic moves, the Air Force established a Relocation Services Contract with Homequity Incorporated on 31 January 1986 (36:28). Senior Air Force leaders and career program registrants are now able to gain relocation assistance. Civilian logisticians who accept a geographic transfer may (1) either sell their homes to Homequity for the appraised value or receive a reimbursement for allowable expenses incurred in selling the home; (2) seek assistance from Homequity to more rapidly sell their homes; (3) use the home finding services of Homerica in the new location; (4) receive mortgage financing assistance in the new location; (5) receive renter referral to a qualified broker in the new location; and (6) request help (at the employee's expense) to locate a career opportunity for a spouse (36:28).

By awarding this Relocation Services Contract, the Air Force now provides services to transferring employees similar to those provided by most major U.S. corporations. This recently initiated program could be seen as Air Force

concern about the apparent non-mobility of civilian logisticians. Or it may be seen as an Air Force desire to possess a mobile civilian work force. In either case, several reports within the Defense establishment have developed the theme that mobility of civilians is a source of management concern. These reports and other sources of information concerning the mobility of civilian logisticians will be discussed in the next section.

Mobility of Air Force Civilians

As stated at the beginning of this chapter, a comprehensive review was conducted of Defense and Air Force literature sources in an attempt to provide information concerning the geographic mobility of civilian logisticians. While little was found concerning Air Force civilian logisticians, two reports did mention the mobility of civilians in the Air Force Audit Agency and Army Corps of Engineers. These were Davis's study of Corps of Engineers' civilian employee mobility (24) and Synder's discussion of efforts made by the Audit Agency to ease mobility problems created by the reorganization and centralization of field offices (73). However, neither of these reports attempted to measure civilian mobility or determine the causes of immobility.

In 1962, an Air Force Times article discussed the closure and consolidation of bases and organizations. This

article indicated that employees would be offered other jobs during these reductions-in-force (RIF). The majority of these job offers probably required voluntary mobility of the personnel. These RIFs lead to civil service legislation aimed at protecting employee grade and seniority rights (64:1). During this literature search no references were found which detailed the extent of the mobility that resulted from these RIFs nor described the factors involved in the employees' decisions to move or not move. The mass movement of civilians during a RIF probably generated studies which evaluated the impact of labor mobility. The lack of published data on this subject indicates that if such studies existed and were used internally by Air Force decision makers, they were not retained. However, in research conducted at the AFIT in 1969, Captain Donald Gober and Mr. John Malouf stated that "varied experience gained in different geographical areas should upgrade the proficiency of the civilian logistician" (34:6). While this study lends evidence to the practicality of civilian logistician mobility, any reports or studies of mobility in earlier periods of time could only be used to compare and contrast the situation existing today, for they may no longer accurately describe today's employees nor the currently existing environment.

Another more recent study which did discuss Air Force civilian mobility as a topic for further concern was

Wilson's master's thesis previously mentioned in this chapter. In the course of her research, Wilson interviewed some of the top managers from Air Force logistics organizations. Joseph E. DelVecchio, Associate Director of Air Force Logistics Plans and Programs, was most concerned that logisticians were functionally oriented specialists as well as being geographically immobile (81:88). Oscar A. Goldfarb, Deputy for Supply and Maintenance, Office of the Assistant Secretary of the Air Force for Research, Development and Logistics, indicated that the greatest inhibitors to promotion to senior level logistics positions include a lack of a "demonstrated broad understanding of the organization" (81:89). This broad understanding could result from career broadening assignments involving geographic mobility.

Wilson found that the most common inhibitor to promotion mentioned by the survey respondents was a

> . . . lack of depth and breadth of job experience. Almost one-third of the senior level logisticians who responded felt there was too much specialization on the way to the senior level. However, many said the problem stemmed from an overall lack of opportunity to gain needed multi-functional experience due to poorly designed programs for career broadening. Related to specialization, the next most prevalent comment was on the apparent lack of mobility among logisticians at the middle and senior levels. (81:103)

Wilson used a survey questionnaire to research the backgrounds of senior Air Force logisticians. She employed a panel of experts from the logistics community to assist

in her research. These five experts all had many years experience either in the Air Force as senior logisticians or in the area of logistics education. A significant conclusion of her research was that both the panel of experts and the participants themselves felt concern that even these senior people showed a lack of mobility. The majority of the experts ". . . felt immobility was a detriment to achieving generalized experience and progression. . ." (81:90).

The Gober and Malouf study mentioned earlier was conducted in 1969. Their results also revealed a general lack of mobility on the part of civilians within the Air Force Logistics Command at that time. This review of Defense and Air Force literature revealed no other studies that discussed Air Force civilian mobility during the time span between the Gober and Malouf in 1969 and Wilson in 1985. And neither of these studies attempted to measure the factors that influenced the mobility decision. Due to the limited information available from Air Force sources, the literature search was extended to include mobility studies of the U.S. population as a whole.

Mobility in the General Population

The intent of this literature review was to substantiate the body of knowledge, support the methodology and help develop conclusions about the research objectives of this effort. The research objectives direct the research

toward specific questions about employee mobility. Therefore, only that literature which appeared to shed light on the research objectives was reviewed in detail. It was, therefore, possible that literature which appeared to be unrelated to the research objectives may have contained potentially useful information, but was not reviewed.

The amount of literature that needed to be reviewed was reduced by clarifying the definition of mobility. As used within the scope of this effort, mobility is the geographic transfer or reassignment of an employee within the Air Force organization. Strictly defining mobility reduced the need to look at literature which discussed the movement of employees from one organization to another. It also helped to reduce the confusion resulting from seemingly conflicting reports about the level of mobility within the general U.S. population. Whether employee turnover, movement away from an organization, had increased or decreased was a question for another research study. But, the literature did show the extent of intra-organizational transfer had decreased (6:59; 8:68; 10:310; 14:95; 29:89; 60:166). As a result of reduced employee mobility

> . . . companies will face major problems in recruiting, training, motivating, and promoting employees, especially managers and professionals, who henceforth will remain in one spot for long periods. . . . The reduction in mobility is greatest among those groups that have been most willing to move in the past: educated professional and managerial prople. . . . Declining mobility poses especially difficult problems for companies that have used transfer as a management-development tool. (6:61)

Some U.S. corporations are facing this change in mobility levels by restructuring the way they fill vacancies, i.e., recruiting recent graduates and moving them before immobility sets in. Other companies have established rotational training programs at their larger facilities so that trainees can stay put (6:62). If major U.S. corporations have been so troubled by the changes in the acceptance of mobility by their employees; then the Air Force, too, may have to make adjustments if the mobility rates of civilian logisticians have also changed.

The literature also discussed ways that many firms are trying to ease the trauma of moving families such as placing new facilities in small towns "where costs are lower, air is cleaner, and outdoor recreation is nearby" (6:61). Many companies are helping families to make successful moves by providing relocation services which help to sell homes and provide career assistance for spouses. Firms may also offer mortgage subsidies to reduce the shock of higher interest rates (8:68). These attempts to assist employees who transfer to other locations within an organization, reflect attention to some of the reasons why employees are reluctant to move. Identification of these factors was relevant to this research.

The second research objective was to determine what factors influenced the mobility decisions of Air Force civilian logisticians. The environment is the same for

Air Force civilians as for members of the general population in the same geographic area; therefore, factors influencing mobility in the general population may be very similar to factors influencing the mobility of civilian logisticians. The literature review provided insight into some of the factors that may have an influence on the level of mobility. Robert Kunish, president of Homequity, one of the country's largest relocation firms, believes that some of the reasons that mobility has decreased are the shock of financing a house at higher interest rates, and spouses who "may be unwilling to give up their jobs or change careers" (60:166). Other literature suggests that age, gender, housing costs, inflation, and a new emphasis on leisure and community activities may also cause a resistance to relocation (6:58; 25:1031-1043; 41:363-368; 50:1138-1146).

At the suggestion of members of the faculty at AFIT, the literature search was expanded into the social science literature to determine if there were any studies dealing with the factors which influence mobility. An extensive search of the social science literature was conducted and numerous studies which evaluated the relationship of single factors, or combination of factors, to the turnover decision were found. Turnover was defined in most social science literature as voluntary separation which does not include promotion and transfers (75). But

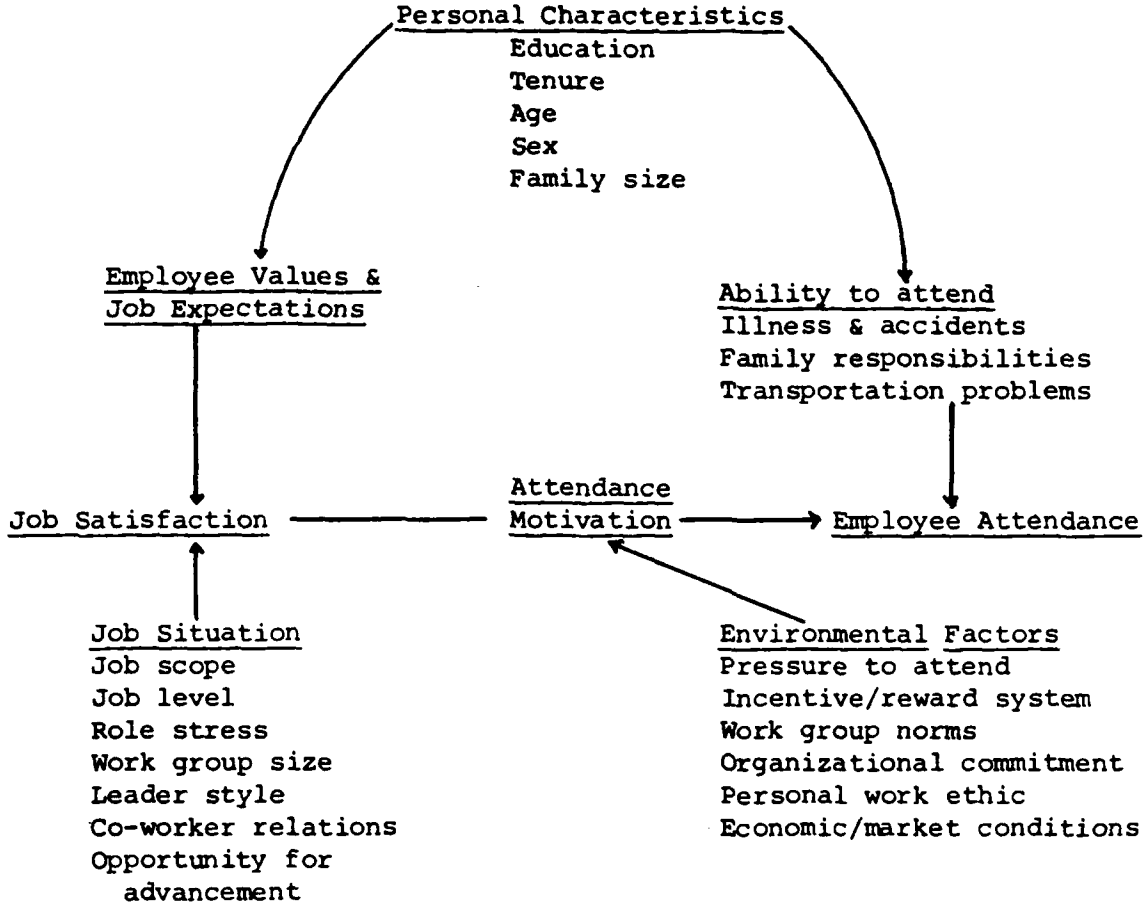
since both turnover and transfer involve a decision to change jobs, understanding the turnover process should shed light on the decision to transfer.

The search was then channeled to literature that might support a relationship between turnover and transfer with the objective of showing that those factors which influence turnover could also influence transfer. The literature did suggest that causes of turnover may also play some role in the decision to accept an organizational transfer from one geographic location to another. At least in some instances, transfer may be preferred, by civilian logisticians, as a way of leaving an organization rather than quitting government service completely (76:673-686).

One study by Jackofsky and Peters stated "the question of mobility within an organization as an alternative to leaving the organization has only recently received attention" (42:490). They suggested that moves both within the organization and away from the organization should be studied to help determine what factors are related to turnover decisions (42:490). Jackofsky and Peters cited an early study by March and Simon that had defined job turnover as leaving the job <u>either</u> by moving within the organization or outside the organization; organizational turnover meant leaving the organization (42:490). This definition was not as narrow as the definition cited in some of the social science literature as it coupled turnover with

transfer. Jackofsky and Peters supported March and Simon's suggestion that an individual changing jobs whether by turnover or transfer was motivated by the same type of factors (42:492). If this is the case, then factors that influence the turnover decision could also be said to influence the geographic availability/transfer decision.

The literature suggested that an employee may exhibit three forms of behavior, specifically tardiness, absenteeism, or turnover, to separate or escape from a bad working situation. These three behaviors are all on the same withdrawal continuum; meaning they have a progressive relationship from tardiness to absenteeism to turnover and they all have the same root causes (75). If, as shown above, turnover is related to transfer, then the factors which influence these withdrawal behaviors may also influence the geographic mobility decision. Steers and Rhodes developed a model, shown in Figure 1, of relationships between absenteeism and three sets of causal factors (variables) leading to a level of absenteeism. Jackofsky and Peters' findings suggested these factors may also play a role in the transfer decision (42:492). Even if there are not direct, and observable, relationships between employee attendance and geographic mobility, at least the Steers and Rhodes model helps to illustrate a number of influential factors considered by employees prior to making employment decisions. Other researchers have presented studies



Variables related to absenteeism:

Personal	Job Situation	Job Satisfaction	
1. Own house	6. Shift	9. *JDI work	Days
2. Sex	7. Tenure	10. *JDI supervisor	absent
3. Age	8. Other employment	11. *JDI pay	per
4. Marital status		12. *JDI promotion	month
5. Number children		13. *JDI co-workers	

*Job Descriptive Index, copyright Bolling Green State University

Fig. 1. Steers and Rhodes' Model of Employee Attendance (80:388)

supporting individual relationships between the factors or combinations of the factors and the turnover decision. The Steers and Rhodes model contains many of the factors which have been demonstrated to have a relationship with the turnover mobility decision (16:563-577; 17:135-153; 40:280-290; 41:509-517; 49:719-735; 55:53-59; 61:120-123; 80:385-389).

The work of Steel and Ovalle support the validity of models that present turnover decisions as a series of changes, such as the Steers and Rhodes model (76:673-686). Clegg also supported this form of model although he suggested that most studies have failed to recognize the full range of factors that could cause turnover (21:88). In his study, four kinds of variables were measured: (1) affective variables in the form of organizational commitment and job satisfaction; (2) behavior variables, i.e., tardiness, absence and voluntary turnover; (3) biographical information, i.e., sex, age, and marital status; and (4) situational data, i.e., tenure, skill level, and job category (21:94). Most of the previous studies have ignored biographical and situational factors as possible sources of influence which Clegg felt to be dangerous (21:88). Even common sense tells us that no decision, whether for turnover or mobility, would be made based on one kind of variable or factor alone. It is the interplay of many of these

factors that make the decision process so complicated and difficult to describe.

Summary

The results of the literature search are, in some ways, more important because of what was not found than by what was found. A search of the Defense and Air Force literature resulted in very few studies that had either direct or indirect application to the research objectives. However, enough support was found to indicate that the mobility has been a subject of interest since 1969 and that many of our senior leaders have voiced their concern about the extent of the mobility of civilian logisticians. This general absence of more detailed studies highlights the importance of this research study to measure the current level of mobility and those factors which affect the mobility decision of Air Force civilian logisticians. The literature did not provide the information to answer the research questions nor satisfy the research objectives. There is no current measure of Air Force civilian logistician mobility.

Other government literature was used to define logistics as a complex and complicated interrelationship of functions that must be carefully managed by civilian logisticians who required broadly-based backgrounds. Mobility opportunities offered by the LCCEP were documented

as a practical means of achieving this broad background for civilian logisticians.

The literature from the general population is basically directed toward two different areas: (1) the means by which many major U.S. corporations are dealing with the impact of the reluctance of the employees to accept geographic transfers, and (2) the individual relationships between specific factors and the turnover decision. Information gleaned from this literature search has been used to support the propositions that mobility is an important issue to study, that mobility information is used by many U.S. corporations, and that mobility levels are changing. In addition, the studies of turnover data did make a connection between turnover and transfer that allows the researcher to consider those factors affecting the turnover decision to also affect the transfer decision. A more thorough development of these factors is provided in Chapter IV.

Having completed the literature search, the next step in this four-phase project was to determine how the data necessary to answer the research questions could be collected and analyzed to satisfy the research objectives.

III. Methodology

Introduction

This chapter describes the four phases of this research effort and the methodology used to answer the specific research questions about Air Force civilian logistician mobility. The following topics are addressed: research design, population definition, existing sources of data, mobility information requirements, the data collection plan, and the planned measurement techniques and data displays.

The research effort was designed as a four-phase project. Phase One involved the literature search and research definition. Phase Two consisted of developing and validating the survey instrument. Phase Three will be the data collection phase and Phase Four will be the data analysis.

Research Design

Phase One of this research began in the formulation of the research objectives and detailed research questions. Next, a detailed literature search was conducted to explore the mobility issue both in the general U.S. population and for Air Force civilian logisticians. A review of Air Force data bases was made to determine what data

was currently available. Finally, the available information was evaluated against the data required to satisfactorily address the research objectives and questions.

During Phase Two, a method of generating the necessary data was developed and a plan was outlined for use in collecting the data. The data collection plan includes a definition of the population, the selected data collection method, the evaluation criteria, the plans for development of the survey questionnaire, the plans for the survey pretest, and data measurement and display techniques. Phase Two concluded with development, validation, and pretest of the survey questionnaire.

Phase Three will be the administration of the survey questionnaire and the actual data collection. Because of the time required to formulate the research objectives and validate the critical survey instrument, research phases Three and Four are outside the scope of this current research effort. Phase Three will proceed as part of a follow-on effort undertaken by the researcher and her advisor. However, the protocol for administering the questionnaire had to be thoroughly detailed prior to completing the data collection plan and the survey instrument.

Phase Four will be the analysis of the data and the presentation of the resulting information in a useful form. While these analyses are also beyond the scope of

this effort, the Phase Two data collection plan could not be completed until the analyses were completely defined and the displays developed.

Mobility Information Requirements

Research Objectives. The literature review provided background information about the mobility of the U.S. population in general. Based upon the type of information that was available to U.S. corporations and in consideration of the structure of the LCCEP and the procedures used to select and train logistics personnel, the basic objectives of the research effort were defined. The objectives selected were those that appeared to be more consistent with the expressed concerns of senior Air Force managers about the subject of civilian mobility. This research effort was designed to generate and develop a survey instrument which will be used to gather data to:

1. Describe the extent of mobility of Air Force civilian logisticians.

2. Describe the patterns of mobility of Air Force civilian logisticians.

3. Identify the factors which influence the mobility decisions of Air Force civilian logisticians.

4. Solicit the opinions of Air Force civilian logisticians about the subject of geographic mobility.

Research Questions. Research questions were developed to support the four major research objectives of this research. The following questions are designed to determine the extent of mobility of the Air Force civilian logisticians who are registrants in the LCCEP career program.

1. What percentage of civilian logisticians are non-mobile, mobile, and highly mobile?

2. What percentage of civilian logisticians have moved one, two, three, or four or more times?

3. How current is the mobility exhibited by civilian logisticians?

4. Do the people who are mobile or non-mobile have any common characteristics?

5. What percentage of the population stated they would or would not accept a move for either a lateral reassignment, a single grade promotion, or a single grade with potential for a two-grade promotion?

The following research questions are designed to determine past, and possible future, patterns of mobility of Air Force civilian logisticians.

6. For each major geographic location at which civilian logisticians are located, what is the pattern of mobility? These patterns of mobility would identify the major departing and ending locations.

7. What were the most frequently identified combinations of departing and ending locations?

8. What percentage of people are willing to move for a lateral reassignment?

9. What are the geographic locations more frequently identified as acceptable for a move involving a lateral reassignment?

10. What percentage of people are willing to move for a single-grade promotion?

11. What are the geographic locations most frequently identified as acceptable for a move involving a single-grade promotion?

12. What percentage of people are willing to move for a single grade with potential for a two-grade promotion?

13. What are the geographic locations most frequently identified as acceptable for a move involving a single grade with potential for a two-grade promotion?

14. What are the geographic locations most frequently identified as unacceptable for any move?

15. Are people who have previously moved more likely to move again?

The following questions are designed to identify factors which influence individual mobility decisions.

16. What are the factors most frequently identified as the major reasons why people actually moved?

17. What are the factors most frequently identified as the major reasons why people would move in the future?

18. What are the factors most frequently identified as the major reasons why people have turned down a job offer or refused to move?

19. What are the factors most frequently identified as the major reason why people would not make themselves available for or turn down a job offer involving a geographic move?

The following questions are designed to solicit the opinions of Air Force civilian logisticians concerning the subject of mobility.

20. What percentage of the respondents agree or disagree that mobility is important in providing the Air Force with the best qualified personnel?

21. What percentage of the respondents agree or disagree that geographic mobility is necessary to adequately prepare civilian logisticians for senior level management positions?

22. What percentage of the respondents agree or disagree that it is possible to receive career broadening experience without being geographically mobile?

23. What percentage of the respondents agree or disagree that being geographically mobile has been beneficial to their careers?

24. What percentage of the respondents agree or disagree that being geographically mobile will be beneficial to their careers in the future?

25. What type of expectations do the respondents have for the balance of their Air Force careers?

Existing Sources of Data

This research effort is framed around collecting and analyzing data to answer the research questions described above. Rather than begin collecting new data immediately, a search was conducted for existing data. This search included the literature review and an analysis of existing government data bases. Very often, with research of this kind, a reviewer will question why certain information was not explored. This report seeks to answer those questions by describing what sources were searched and what useful data that search provided.

The Literature Search. The literature search was conducted to substantiate a body of knowledge, support the methodology and help develop reasonable conclusions and recommendations. The search was described in detail in Chapter II. The results of the search indicated that no current measure of the mobility of Air Force civilian logisticians exists. However, the search indicated the value to U.S. corporations of having information about the mobility decisions of their employees. There was also evidence

that geographic mobility assignments help to provide the critically needed multi-organizational, multi-functional background necessary for civilian logisticians to be able to manage the interrelated functions of the complex logistics environment.

In addition, top Air Force leaders have expressed their concern that the pool of logisticians preparing for top management positions did not have this broadly-based background. However, no measure of the mobility background of civilian logisticians currently exists. And finally, an analysis of the social science literature yielded a listing of factors that could be considered to influence the transfer mobility decisions of civilian logisticians.

Personnel Data Information Systems. Some factual and historical information does exist within the Department of Defense personnel records of individual logisticians. These records reside in the Air Force Personnel Data System-Civilian (PDS-C) but would require a special programming effort, at Air Force level, to identify the applicable records. In addition, while the records could be physically identified, a manual review of each record would be required to collect the required data on mobility trends and patterns.

The records and reports maintained at the Air Force Civilian Personnel Management Center (AFCPMC), Randolph

Air Force Base, Texas, present another source of data. These records could be used to identify all civilian logisticians who have accepted positions managed for the LCCEP programs. Again, each record would have to be manually reviewed to determine which job changes by the individual logistician also involved a change in geographic locations. Because not all logistic positions are managed by AFCPMC, the records of the LCCEP-managed job changes would not include all job changes made by the civilian logisticians but only the portion who were selected for positions managed through the LCCEP. Therefore, this sample would not be representative of the population of Air Force civilian logisticians.

Other personnel data collection systems within the Department of Defense also contain information about individual civilian employees. According to Karen Cleary Alderman, Director of Requirements for the Assistant Secretary of Defense for Force Management and Personnel, the PDS-C feeds information to the Defense Manpower Data Center (DMDC). Ms Alderman stated the individual records would be the same in either file (5). According to Ken Sheflen, Director of DMDC, the center does not have the capability to look at the internal mobility of different occupations. Any review of these records would require dedicated computer programming and a manual search of the resulting records to identify Air Force civilian logisticians (71).

Therefore, several data bases do exist where specific personnel mobility history could be extracted. Since the cost of manually extracting this information would be prohibitive and any information concerning factors which influence the mobility decision would still have to be solicited by some form of personal questioning, these data bases were not used. Therefore, since neither the literature review nor a search of Air Force personnel records could provide all the information required on the subject of geographic mobility, a survey instrument was selected as the best device to gather the data necessary to describe the mobility of civilian logisticians.

Data Collection Plan

The data collection plan, which is described in this section, will address the following subjects: defining the population, the data collection method, the evaluation criteria, the survey questionnaire, the survey pretest, and measurement and display techniques.

Defining the Population. As noted previously, Edgar Schein recommends that managers responsible for deploying and employing human resources must be aware of the needs of those individual human resources (69:17). The needs of these individuals may determine their extent of availability for mobility assignments. Therefore, organizations, such as the Air Force, should seek to

understand the propensity for mobility of its individual human resources. This would be most beneficial when the organization is planning its career programs or selecting personnel for assignments.

While information about all Department of Defense civilians might be beneficial, this would require a far more extensive method of data collection than could be completed within the scope of this research effort. Therefore, this research report sought to collect meaningful mobility data about the population of Air Force civilian logisticians. The Air Force Civilian Personnel Management Center (AFCPMC) currently manages approximately 2500 logistics positions as part of the LCCEP. There are more than 11,000 people currently registered in the LCCEP. These individuals represent the pool of manpower which the Air Force uses to fill the logistics-related management and technical positions. While it would be desirable to determine the feelings and opinions of every Air Force civilian logistician, this is impractical due to the time and financial limitations of this research effort. Therefore, a smaller population was selected.

The study population was limited to all Air Force civilians at the GS-12 through GM-15 grade level currently employed in the logistics-related job series, as defined for the LCCEP in AFR 40-110, Volume IV (27:a-1). This population includes all appropriate level civilian

logisticians performing in any of the exclusive LCCEP occupational job series called OCSRs. The exclusive LCCEP OCSRs are illustrated in Table I. Those OSCRs that are indicated by an asterisk are only included if more than 50 percent of the tasks performed by the individual assigned to the job are logistics-related tasks. The assigned jobs are represented in the personnel information data base by codes called skills codes.

The Data Collection Method. Because the data was not economically available from existing sources another method for gathering the data had to be developed. Since personal interviews were also too costly, the method of data collection selected was to use a survey mailed to a sample of all Air Force civilian logisticians. This data-gathering method required that a standard survey instrument be constructed and administered so that the required responses could be summarized and compared. No existing survey instrument was found in the literature review. Therefore, a survey questionnaire had to be developed. Chapter IV describes the development and validation of the survey questionnaire.

As described earlier, the population included all civilians performing logistics duties in occupational job series managed by the LCCEP. After combining the OSCR with the grade level, the twenty-seven exclusive LCCEP

TABLE I

LCCEP MEMBERS BY OCCUPATIONAL SERIES (27:1-2)

*	201 - Personnel
*	301 - Administrative and Technical
*	340 - Program Management
*	343 - Management Analysis
*	345 - Program Analysis
	346 - Logistics Management
*	801 - Engineer
*1101	- General Business and Industry
*1150	- Industrial Specialist
1152	- Production Control
*1601	- General Facilities/Equipment
*1640	- Facilities Management
1670	- Equipment Specialist
1910	- Quality Assurance
2001	- General Supply
2003	- Supply Program Management
2010	- Inventory Management
2030	- Distribution Facilities & Storage Management
2032	- Packaging
2050	- Supply Cataloging
2101	- Transportation Specialist
2130	- Traffic Management
2131	- Traffic Rate
2135	- Transportation Claims Examiner
2144	- Cargo Scheduling
2150	- Transportation Operations
2151	- Dispatching

*These series included in LCCEP only when skills coded for 50 percent or more logistics.

OSCRs shown in Table I can be further subdivided into cells, i.e., 2001 OSCR becomes 2001 at the grade 12 or GS-2001-12; then GS-2001-13, GS-2001-14, and GS-2001-15. These calls would represent all the grade levels included in the study for the 2001 OSCR. In this way a display of all the possible combinations of OSCR and grade levels was constructed, as shown in Table II. The numbers shown in each cell represent the number of individuals employed at that grade level within that occupation job series. When the population is divided in this way, the number of individuals in each of the cells varies greatly from one cell to the next and over 25 percent of the cells would be empty. It would be unrealistic and impractical to collect data separately from individuals in each of these 108 cells. In addition, meaningful statistical analysis is not possible unless fewer groupings can be formed. Therefore, in order to reduce the number of different cells to a manageable number, some method of grouping cells had to be developed.

The cells could be grouped by OSCR only, regardless of grade level. In that case, none of the cells would be zero but there is great disparity in the number of individuals classified with this method. Some of the cells would contain less than five individuals while others contain more than 1800 individuals. The cells could be grouped by grade regardless of series, but the largest

TABLE II

OSCR/GRADE COMBINATIONS WITH POPULATION TOTALS (63)

OCSRs	Title	Total	GS-12	GS-13	GS-14	GS-15
* 201	Personnel	2	2	0	0	0
* 301	Administrative & Technical	501	288	119	62	32
* 340	Program Management	8	7	1	0	0
* 343	Management Analysis	129	93	34	2	0
* 345	Program Analysis	442	269	119	47	7
346	Logistics Management	1809	1255	386	118	50
* 801	Engineer	238	144	76	16	2
*1101	General Business & Industry	293	199	59	29	6
*1150	Industrial Specialist	41	37	3	1	0
1152	Production Control	82	64	17	0	0
*1601	General Facilities/Equipment	100	22	46	18	14
*1640	Facilities Management	2	1	1	0	0
1670	Equipment Specialist	319	261	52	6	0
*1910	Quality Assurance	2	2	0	0	0
2001	General Supply	87	59	20	8	0
2003	Supply Program Management	298	212	62	20	4
2010	Inventory Management	418	286	98	29	5
2030	Distribution Facilities & Storage Management	30	22	7	1	0

TABLE II--Continued

OCSRs	Title	Total	GS-12	GS-13	GS-14	GS-15
2032	Packaging	36	24	8	3	1
2050	Supply Cataloging	26	16	6	3	1
2101	Transportation Specialist	35	24	4	6	1
2130	Traffic Management	159	121	29	7	2
2131	Freight Rate Specialist	0	0	0	0	0
2135	Transportation Claims Examiner	0	0	0	0	0
2144	Cargo Scheduling	0	0	0	0	0
2150	Transportation Operations	26	19	5	2	0
2151	Dispatching	0	0	0	0	0
Total		5083	3238	1152	378	125

*These series included in the LCCEP only when skills coded for 50 percent or more logistics.

cell would still have twenty-five times more individuals than the smallest cell.

Another method of limiting the number of calls would be to group the OSCRs into the career families identified in the LCCEP regulation, AFR 40-110. A career family represents a grouping of related positions classified according to the OSCR, the location of the job, and the position description of the job itself. There may be some overlap whereby a OSCR/grade combination could belong to more than one career family depending upon the location of the job. However, an individual job can only be identified to one series and one career family depending upon the job description, responsibilities, and location. The logistics career families used in this research are: (1) program management, (2) logistics management, (3) acquisition management, (4) maintenance and production management, (5) supply and distribution, and (6) transportation management. Three other families mentioned in the regulation are not used because of their overlap with the other six career families. The three career families which cannot be identified based on OSCR/grade combination are materiel management, international logistics, and logistics plans. Further classification would be dependent upon the organizational location of each job. Because the position location is unknown, this research bases the grouping

scheme on the OSCR. The population was divided into career family groups as shown in Table III.

The ATLAS Variable Inquiry System is the computer network system which is tied into the personnel data information system at AFCPMC. The ATLAS system will be used to identify the sample participants and produce a computer listing and mailing labels. A computer program will be written which then can be used to select the participants within each cell by choosing the last digit of the Social Security Number. The digits to be used will be chosen by random selection of numbers from zero to nine.

A census of 100 percent survey would yield the most complete and accurate information about the population. However, due to the number of logisticians involved and the geographic dispersion of these same people, probability random sampling will be used to select those members of the population asked to complete the survey (30:302). The size of the random sample is critical. It must be large enough to be representative of the population; be large enough to allow for statistical analysis while being small enough to be economically feasible. One method of computing the sample size is first to determine the confidence level the researcher requires to make meaningful interpretation of the data. This confidence level is defined as the percent chance that the mean (average) of the sample data being analyzed is the same as the mean of

TABLE III

LCCEP SERIES BY POSSIBLE CAREER FAMILY GROUPINGS

Series	Title	Career Family
* 201	Personnel	Acquisition Management
* 801	Engineering	Acquisition Management
*1101	General Business & Industry	Acquisition Management
*1150	Industrial Specialist	Acquisition Management
*1601	General Facilities/Equipment	Acquisition Management
*1640	Facilities Management	Acquisition Management
346	Logistics Management	Logistics Management
1152	Production Control	Maintenance & Production
1670	Equipment Specialist	Maintenance & Production
1910	Quality Assurance	Maintenance & Production
* 301	Administrative and Technical	Program Management
* 340	Program Management	Program Management
* 343	Management Analysis	Program Management
* 345	Program Analysis	Program Management
2001	General Supply	Supply & Distribution
2003	Supply Program Management	Supply & Distribution
2010	Inventory Management	Supply & Distribution
2030	Distribution Facilities & Storage Management	Supply & Distribution
2032	Packaging	Supply & Distribution
2050	Supply Cataloging	Supply & Distribution
2101	Transportation Specialist	Transportation Management
2130	Traffic Management	Transportation Management
2131	Traffic Rate	Transportation Management
2135	Transportation Claims Examiner	Transportation Management
2144	Cargo Scheduling	Transportation Management
2150	Transportation Operations	Transportation Management
2151	Dispatching	Transportation Management

*These series included in LCCEP only when skills coded for 50 percent or more logistics.

the population data, if that was known (30:292). The confidence level used for this research is 95 percent. What this means is that at the 95 percent confidence level we would be 95 percent sure that the sample information accurately represents the population. The confidence level could have been another percentage such as 90 percent or 92 percent, but this research used a 95 percent confidence level because it conveniently represents a measurement within two standard deviations from the mean.

One of the reasons it is necessary to group the data, as shown in Table III, is that if an independent random sample can be selected and studied from each cell in proportion to the number of individuals assigned to that group, then the resulting data should be representative of the entire population. This would reduce the risk of not having representatives from each cell of the sample in the same proportion as the sample size is to the population. This method of dividing up and sampling the population is called complex, stratified random sampling (30:302). The number of individuals to be sampled in each cell (or strata) is calculated for the desired confidence level using the following standard formula (81:34):

$$n = \frac{(NZ^2) \times p(1-p)}{(n-1)\ (d^2) + (Z^2) \times p(1-p)}$$

where

Z = one-half the standard deviation associated with the desired level of confidence (95 percent),

N = the size of the population being surveyed,

n = the number of responses required,

p = maximum response rate factor (.50), and

d = desired tolerance level (.05).

(N) will represent the number of responses required within each of the cells of the stratified structure. This formula will then yield the desired sample size for each of the cells. The maximum response rate (p) refers to the percentage of surveys that are actually returned by the particpants. The higher the response rate, the fewer the number of surveys required. Based upon the average response rate for AFIT surveys completed within the last five years, the expected level of response is about 50 percent or a factor of .5 in the formula. Using a higher confidence level causes the number of surveys needed to increase. Using a lower confidence level would reduce the number of surveys required.

Therefore, the formula shown earlier was used to compute a sample size of 3000. While this is still quite high, it is necessary to ensure that the sample is representative of the entire population. This large sample size demanded that the survey device be of sufficient quality to insure accurate and meaningful data collection. The

validation of this survey device became a major ingredient of this research effort.

Table IV shows how the population looks when grouped by LCCEP career family along with the sample size.

TABLE IV

THE LCCEP CAREER FAMILY GROUPS WITH SAMPLE SIZE

Family Group	Size	Sample "n"	Response Rate	Number of Surveys to Mail
Program Management	1,080	284	0.5	568
Logistics Management	1,809	317	0.5	634
Acquisition Management	676	245	0.5	490
Maintenance & Production	403	197	0.5	538
Supply & Distribution	895	269	0.5	394
Transportation Management	220	140	0.5	280
Total	5,083	1,452	0.5	2,904*

*Rounded to 3000 for ease of calculation.

One drawback of this form of complex, stratified sampling structure is that a random sample must be conducted within each of the cells. In this instance, all civilians within a series would have to be grouped by career family and grade and then a random sample would have to be drawn for each cell. This is difficult when using the ATLAS data base. Therefore, it was determined that a simple random sample would be conducted by selecting enough random digits to provide the same size sample as the

complex, stratified sampling scheme would provide. This simple random sample could then be chosen for the entire population of LCCEP series and grade combinations which would eliminate the need for the multiple samples required by the complex, stratified method. The responses will be categorized by career families and compared with the required minimum sample sizes to insure the sufficiency and representativeness of the sample data.

Evaluation Criteria. Air Force civilian mobility was defined in Chapter I as movement of a civilian logistician from one geographic location to another as a result of a reassignment, promotion, or transfer of positions within the Air Force. In order to quantify and meaningfully analyze the survey results, further delineation of this definition was required. The term "mobility" will be further subdivided into three operational definitions. Within the context of this research effort a logistician was classified "non-mobile" if he/she had made no geographic moves; a logistician was classified "mobile" when he/she had made one or two geographic moves; and an employee was classified "highly mobile" when he/she had made three or more moves.

The Survey Questionnaire. A survey questionnaire was designed to provide the information needed to meet the research objectives and to answer the research questions.

The completed survey questionnaire is included as Appendix D. The questionnaire has separate sections aimed at answering each of the research questions. Generally, the data collected will provide information about: (1) past mobility; (2) the currency of past mobility; (3) the propensity for future mobility; (4) the dominant historical movement patterns; (5) the most acceptable and least acceptable locations for future moves; (6) the factors which influence the mobility decision; (7) the opinions of the respondents concerning mobility programs, requirements, and opportunities; and (8) demographic characteristics of the respondents. These demographic characteristics include: current location, total years of federal service, number of years of previous military service, current grade level, logistics career family group, gender, housing status, age, and marital status.

The Survey Pretest. The survey was originally pretested by administration of the questionnaire to volunteers from the civilian graduate students at the School of Systems and Logistics, Air Force Institute of Technology. In addition, the opinions of the faculty and staff of the School were solicited concerning the reliability and validity of the survey itself. A pretest of the completed survey was conducted with volunteers from the Plans and Programs Directorate, Headquarters Air Force Logistics

Command. The results of these pretests are included in Chapter IV, Questionnaire Development.

Measurement and Display Techniques. The survey questionnaire will be administered during Phase Three of this research effort. The following section describes the analyses and displays for the data that will be collected using the survey questionnaire.

In general, five types of analyses will be performed on the data for any of the research questions. The first type of analysis could be a simple tally of the number of respondents choosing each of the possible responses to each question. In many cases, frequency tables could be constructed to show what percentage of the overall sample respondents selected each response. In addition, the sample could be divided, as indicated by the responses to the demographic questions, and the frequency of each response could be calculated for each category of each demographic characteristic. For example, the percent of the respondents who have made a geographic move can be calculated and displayed for each major location or for males versus females.

A second type of analysis would utilize descriptive statistical procedures to determine measures of central tendency and variability. Using this analysis a numerical description of the mean, the range, and the

variance could be calculated for the categories of each demographic characteristic. The frequency of response in each category within a demographic characteristic could then be used to represent that category in the statistical calculations (13:54-72).

A third type of analysis could be performed for those demographic characteristics which have mutually exclusive categories. Since the expected response of the sample is so large, we can assume that the answers will be normally distributed. Therefore, we can use a standard normal statistical test (z-test) to determine if there is a significant difference between the responses of the two mutually exclusive groups (13:273-318). For example, this means that we can test to determine if there is a difference in the number of moves made by women and by men.

A fourth type of analysis that could be performed to measure the relationship of the demographic characteristics, the study's independent variables, to the level of mobility, the study's independent variable. These analyses would use parametric statistical techniques such as simple linear regression to measure an individual relationship or multiple regression to measure the relationships of multiple demographic characteristics to the level of mobility. This means that a series of computerized rules of thumb could be used to determine if there was a

common denominator among respondents who were mobile, or among respondents who were non-mobile (13:395-466).

Likewise, discriminate analyses could be performed to statistically distinguish between the groups of people who were mobile and the group of respondents who were non-mobile. The goal of this final type of analysis is to determine what geographic characteristics could cause the mobility levels of the groups to be different. In other words, the goal is to be able to "discriminate" between the groups in the sense of being able to tell them apart. Of course no single characteristic will perfectly differentiate between the two groups, but taking several characteristics and mathematically combining them may help to find a single characteristic on which mobile people are clustered on one end of the measurement scale and non-mobile people are clustered on the other end of the measurement scale (44:434-435). As an example, it may be possible to deduce from a discriminate analysis that mobile people tend to be older than non-mobile people, which might make sense from a rational perspective because older people have had longer careers.

In the following paragraphs, each of the research objectives and research questions are listed along with the type of analysis and display which could be used to describe that question.

Research Objective 1. Describe the extent of the mobility of Air Force civilian logisticians.

Research Question 1. What percentage of civilian logisticians are non-mobile, mobile, and highly mobile? The sample respondents will be divided into categories representing the different demographic characteristics. For each of the demographic characteristics, the percentage of non-mobile, mobile and highly mobile respondents will be computed. This analysis will be extended within those demographic characteristics which have subcategories. For instance, some of the analyses will be as follows (1) Sample population, the percent of people who are non-mobile/mobile/highly mobile; (2) Current grade, the percent of previous movement by current grades; (3) Current location, the percent of previous movement by key locations; (4) Command, the percent of previous movement by current Air Force major command location; (5) Gender, the percent of movement by gender of respondents; (6) Prior military service, the percent of movement by the number of years of prior military service; and (7) Years of federal service, the percent of movement by the number of years of federal service. The descriptive statistical procedures described above will be used to determine the measures of central tendency and the variability of the data for each category and characteristic. Hypothesis tests using the z-test statistic will be used

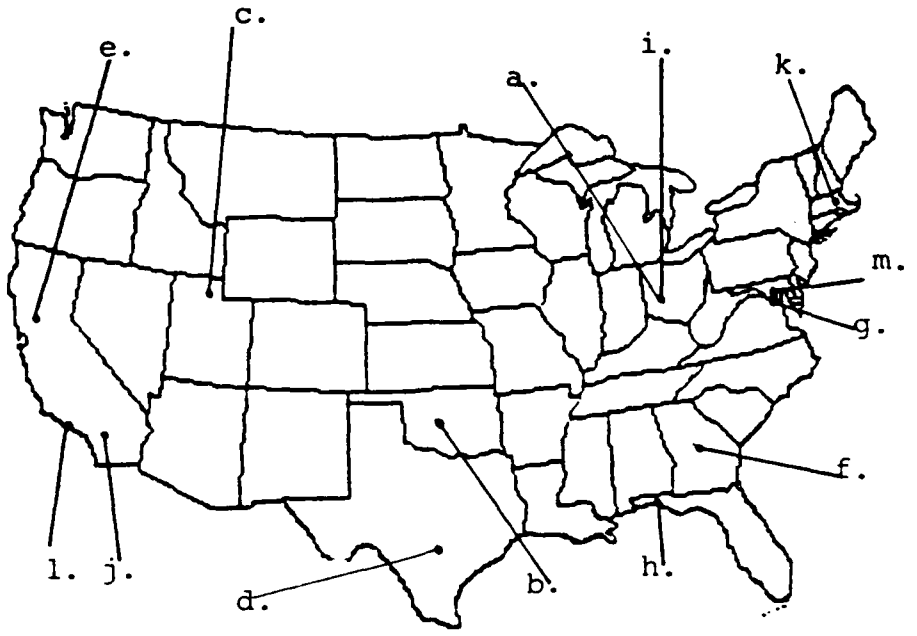
to determine if significant differences exist between the mobility levels of males/females, married/not married. Table V and Figure 2 are representative of the displays planned for this data.

Research Question 2. What percentage of civilian logisticians have moved one, two, three, or four or more times? The sample will be analyzed and the percent of respondents who have zero, one, two, three, four or more moves, will be computed. Then the sample respondents will be divided for each of the demographic characteristics and these responses will be analyzed for each category within the demographic characteristic. These differentiations are as follows: (1) Location, the percent of respondents at each location who have made zero, one, two, three, four or more moves; (2) Current grade level, the percent of respondents with zero, one, two, three, four or more moves by current grade level; (3) Years of federal service, the percent of respondents with zero, one, two, three, or four or more moves by the number of years of service; (4) Prior military service, the percent of respondents with zero, one, two, three, or four or more moves by the number of years of military service; (5) Logistic function, the percent of the respondents with zero, one, two, three, or four or more moves by logistic function; (6) Gender, the percent of respondents with zero, one, two, three, or four or more moves by gender; (7) Age, the percent of the

TABLE V

MOBILITY LEVELS BY DEMOGRAPHIC CHARACTERISTICS

Characteristic	Non Mobile	Mobile	Highly Mobile	Total Mobile	Mean	Range	Variance
Overall sample							
Current grade							
GS-12							
GS-13							
GS-14							
GS-15							
Current Location							
HQ AFLC/WPAFB OH							
OC-ALC/TAFB OK							
OO-ALC/HAFB UT							
SA-ALC/KAFB TX							
SM-ALC/MAFB CA							
WR-ALC/RAFB GA							
AD/EAFB FL							
ASD/WPAFB OH							
BMO/NAFB CA							
ESD/HAFB MA							
SD/LAAFS CA							
HQ USAF/Pentagon							
Other							
Command							
AFLC							
AFSC							
Other							
Gender							
Male							
Female							
Years federal service							
0 to 5 years							
5 to 10 years							
10 to 15 years							
15 to 20 years							
25 to 30 years							
30 to 35 years							
above 35 years							



a. HQ AFLC/Wright-Patt AFB OH
b. OC-ALC/Tinker AFB, OK
c. OO-ALC/Hill AFB, UT
d. SA-ALC/Kelly AFB, TX
e. SM-ALC/McClellan AFB, CA
f. WR-ALC/Robins AFB, GA
g. HQ AFSC/Andrews AFB, MD
h. AD/Eglin AFB, FL
i. ASD/Wright-Patt AFB OH
j. BMO/Norton AFB, CA
k. ESD/Hanscom, MA
l. SD/Los Angeles, CA
m. HQ USAF/Washington, DC

Fig. 2. Mobility Percentage by Location

respondents with zero, one, two, three, or four or more moves by current age. Again, descriptive statistics will be used to determine the mean number of moves, the range of the number of moves, and the variance in the number of moves in each category. Hypothesis tests using the z-test statistic will be used to determine if significant differences exist between the number of moves of men and women. Data displays similar to Table V and Figure 2 will be used with columns for the mean, range, and variance added as applicable.

Research Question 3. How current is the mobility exhibited by civilian logisticians? The date of the last move made by each of the respondents will be used to indicate the currency of the respondents' mobility. Descriptive statistics will be used to group the year into the categories representing the number of years since the last move. The sample respondents will again be divided for each demographic characteristic and the mean, range and standard deviation for the number of years since the last move will be shown for the different categories within each demographic characteristic. For instance, the following statistics will be shown: the mean, range and variance for the number of years since the last move by current location; current grade; age; and logistic function. Displays similar to Table V and Figure 2 will be used to display the data.

Research Question 4. Do the people who are mobile or non-mobile have any common characteristics? Common characteristics could be any single or combination of the demographic characteristics, i.e., current grade, logistics career function, location, tenure, previous military experience, age, gender, marital status, family circumstances, or housing status? Both multiple regression and discriminate analysis will be used to measure the relationships between the demographic characteristics and the levels of mobility to determine if the respondents who were mobile or non-mobile had any common denominator. The goal will be to make observations about respondents at each level of mobility.

Research Question 5. What percentage of the population stated they would or wouldn't accept a move for either a lateral reassignment, a single grade promotion, or a single grade with potential for a two-grade promotion? The numbers of people who indicated a willingness to accept one of these three types of moves, along with those who indicated they would not move, will be tallied. Percentages will be computed for each group. And the mean, range and variance of the respondents in each demographic characteristic category will be determined and compared. Hypothesis tests using the z-test statistic will be run to determine if there were significant differences in the percentage/mean of potential mobility/

immobility on the basis of gender, women/men; home ownership, rent/own home; marital status; and whether the spouse was employed. A display similar to Table V will be used for this data.

Research Objective 2. What are the patterns of the mobility of Air Force civilian logisticians? The following questions will be analyzed as shown to provide the information required to satisfy this research objective.

Research Question 6. For each major geographic location at which civilian logisticians are located, what is the pattern of mobility? These patterns of mobility would identify the major departing and ending locations. For every current location, the number of respondents who identify other locations as the previous location will be tallied. These will then be shown as the percentage of personnel at each location who came from each of the other locations. As an example, it may be possible to say that . . . of the respondents currently located at Oklahoma City Air Logistics Center, 14 percent came from . . . , and 39 percent had spent their entire careers at Oklahoma City. These percentages will be displayed in a table similar to Table V. To show the locations, a display similar to Figure 3 will be used to indicate the most dominant previous locations of the current respondents

OC-ALC AS AN ORIGIN

OC-ALC AS A DESTINATION

Fig. 3. Patterns of Mobility

at Oklahoma City. The departing and ending locations will be indicated by using arrows to show the direction of travel.

Research Question 7. What were the most frequently identified combinations of starting and ending locations? For each location, any dominant starting and ending movement patterns will be identified by comparing the number of times that a starting and ending combination for that location is identified. Additionally, the dominant paths identified from all the starting and ending combinations mentioned will be shown on a version of Figure 3.

Research Question 8. What percentage of people are willing to move for a lateral reassignment? The number of respondents who indicate that they would move for a lateral reassignment will be tallied. The sample respondents will be divided into the various demographic characteristics and the percentage of those who were willing to accept a lateral reassignment and those who were not will be calculated. For instance, the percent of the sample respondents willing to move for a lateral will be computed for each demographic characteristic (and subcategories) such as current location, the number of years of federal service, the current grade level, the logistics career function, gender, housing status, age, marital status, and whether the spouse was employed or willing to

move. Hypothesis tests using the z-test statistic will be conducted to determine if there are statistically significant differences in the acceptance of lateral reassignments between the different categories of these characteristics. Displays similar to Table V and Figure 2 will be used to display this information.

Research Question 9. What are the geographic locations most frequently identified as acceptable for a move involving a lateral reassignment? The data will be analyzed by tallying the number of times each location is selected as most acceptable, second most acceptable, third most acceptable and the number of times that only the current location is acceptable. Also, the sample can again be divided into the demographic characteristic categories such as current location, gender, marital status, and current grade. Hypothesis tests using the z-test statistic, multiple regression and discriminate analysis will be used to determine if there are differences between the locations selected by the different respondents. Displays similar to Table V will be used for display of these locations and the percentage of time they are selected.

Research Question 10. What percentage of people are willing to move for a single grade promotion? The analysis and display for this question will be the same as for research question eight.

Research Question 11. What are the geographic locations most frequently identified as acceptable for a move involving a single-grade promotion? The analysis and display for this question will be the same as for research question nine.

Research Question 12. What percentage of people are willing to move for a single grade with potential for a two-grade promotion? The analysis and display for this question will be the same as for research question eight.

Research Question 13. What are the geographic locations most frequently identified as acceptable for a move involving a single grade with potential for a two-grade promotion? The analysis and display for this question will be the same as for research question nine.

Research Question 14. What are the geographic locations most frequently identified as unacceptable for any move? The data will be analyzed by tallying the number of times each location is selected as least acceptable, second least acceptable, and third least acceptable. A tabular display, similar to Table V, will be used to display these locations and the percentage of time they are selected. Also, the sample will again be divided into the demographic characteristic categories such as current location, gender, marital status, and current grade. Statistical tests, multiple regression and discriminate

analysis will be used to determine if there are differences between the locations selected by the different respondents. Displays similar to Table V and Figure 2 could be used for this information.

Research Question 15. Are people who have previously moved more likely to move again? The population will be divided into mobile and non-mobile groups. The non-mobile group consists of people who were classified as "non-mobile" by having had no geographic moves. Those people who were classified as "mobile" or "highly mobile," because they had made one or more moves, would both be considered in the mobile group for this analysis. These two groups will be compared in relationship to their responses for research questions eight, ten and twelve and the frequency of a willingness to move will be computed for the mobile and non-mobile groups. Hypothesis tests using the z-test statistic will be used to determine if there is a significant difference between people who were previously mobile and those who were previously non-mobile. Discriminate analysis will be performed on the frequency of the willingness to accept a move between the two groups to determine if there are any discriminating characteristics of these two groups. A display similar to Table V could be used to indicate the frequency of response for each type of move by each group.

Research Objective 3. Identify the factors which influence individual mobility decisions. The following questions will be used to satisfy this research objective.

Research Question 16. What are the factors most frequently identified as the major reasons why people have actually moved? Using those demographics which have not changed over time, the population will be divided and the frequencies of selection of each factor will be determined. These demographics are gender and previous military service. Statistical tests will be performed to determine if the factors selected were significantly different between male/female and by the number of years of prior military service. The overall frequency of selection for each factor by demographic characteristic categories will also be tallied. These frequencies will be displayed as shown in Table VI. In addition, statistical tests will be performed to determine if the factors chosen were significantly different than those factors chosen by people who had refused a past move, research question 18. Regression analysis and discriminate analysis will be used to determine if the factors selected by the non-mobile group are different than those selected by the mobile group.

Research Question 17. What are the factors most frequently identified as the major reasons why people would move in the future? The sample respondents will again be divided by the following demographic characteristic

TABLE VI

SELECTION OF THE FACTORS OF MOBILITY

	a	b	c	d	e	f	g	h	i	j	k
Overall sample											
Most important											
2nd important											
3rd important											
Gender											
Male											
Most important											
2nd important											
3rd important											
Female											
Most important											
2nd important											
3rd important											

*Factor categories are grouped as follows:

a. None

b. Personal (health, education, travel, pending retirement, military reserve commitment)

c. Family (spouse's health or career; parents' health or age; children's health, age, or education; family commitments; turmoil of the move; hard to start over)

d. Social (community, friends, neighbors, church, civic)

e. Locale (climate/weather, area of the country, distance to family, retirement location)

f. Economic/Financial (cost of living, cost of housing, mortgage rates, difficulty in selling home, local economy, personal investments)

g. Job relationships (co-worker, supervisory, and/or management relationships; organizational reputation)

h. Job opportunities (job challenge, promotion potential, career development, training opportunities, growth potential)

i. Job compensation (salary, performance and special achievement awards, personal recognition, better retirement pay)

j. Job situation (type of work, supervisory level, tenure in the organization, variety, autonomy, job responsibility)

k. Other (please explain)

categories: current location, gender, age, marital status, housing status, spouse employed, and spouse willing to move. The frequency of selection of each factor will be tallied and displayed in additional tables. In addition, the sample respondents will be divided two other ways: by those who are willing and non-willing to accept a move, research question 5, and by those who were previously mobile or non-mobile. An additional analysis will also determine if the factors chosen were significantly different than those factors selected by people not willing to move, research question 19. Statistical tests, regression analysis, and discriminate analysis will be used to determine if the factors selected were significantly different between the two categories of each demographic groups. A table similar to Table VI will be used to indicate the factors chosen by each of the demographic and special groups.

Research Question 18. What are the factors most frequently identified as the major reasons why people have turned down a job offer or refused to move? Using those demographics which have not changed over time, the population will be divided and the frequencies of selection of each factor will be determined. These demographics are gender and previous military service. The overall frequency of selection for each factor by demographic characteristic categories will also be tallied. The frequencies

will be displayed as shown in Table VI. Statistical tests will be performed to determine if the factors selected were significantly different between male/female and by the number of years of prior military service. In addition, statistical tests will be performed to determine if those factors chosen were significantly different than those factors chosen by people who have previously moved, research question 16. Regression analysis and discriminate analysis will be used to determine if the factors selected by the non-mobile group are different than those selected by the mobile group.

Research Question 19. What are the factors most frequently identified as the major reasons why people would not make themselves available or turn down a job offer involving a geographic move? The sample respondents will again be divided by the following demographic characteristic categories: current location, gender, age, marital status, housing status, spouse employed, and spouse willing to move. The frequency of selection of each factor will be tallied and displayed in additional tables. In additi :, the sample respondents will be divided two other ways: by those who were willing or non-willing to accept a move, research question 5, and those who were previously mobile or non-mobile. An additional analysis will also determine if the factors chosen were significantly different than those factors selected by people willing to move, research

question 17. Hypothesis tests using the z-test statistic, regression analysis, and discriminate analysis will be used to determine if the factors selected were significantly different between the two categories of each demographic and special group. A table similar to Table VI will be used to indicate the factors chosen by each of the demographic and special groups.

Research Objective 4. Solicit the opinions of Air Force civilian logisticians about the subject of geographic mobility. The following questions and analysis will be used to satisfy this research objective.

Research Question 20. What percentage of the respondents agree or disagree that a geographically mobile civilian work force is important to the Air Force? First, the sample respondents will again be divided for the following demographic characteristics: mobile and non-mobile, current location, current grade, years of federal service, prior military service, logistics career function, gender, age, and career expectations, research question 25. The frequency for the number of each possible response will be tallied by demographic characteristics and categories. These percentages and statistics will be displayed in a table similar to Table VII. Hypothesis tests using the z-test statistic, regression analysis, and discriminate analysis will be used to determine if the responses are

TABLE VII

MOBILITY OPINIONS OF AIR FORCE CIVILIAN LOGISTICIANS

Characteristic	a. Strongly Disagree	b. Disagree	c. Neither Agree Nor Disagree	d. Agree	e. Strongly Agree
Overall sample					
Current grade					
GS-12					
GS-13					
GS-14					
GS-15					
Current location					
HQ AFLC/WPAFB OH					
OC-ALC/TAFB OK					
OO-ALC/HAFB UT					
SA-ALC/KAFB TX					
SM-ALC/MAFB CA					
WR-ALC/RAFB GA					
AD/EAFB FL					
ASD/WPAFB OH					
BMO/NAFB CA					
ESD/HAFB MA					
SD/LAAFS CA					
HQ USAF/Pentagon					
Other					
Gender					
Male					
Female					
Years federal service					
0 to 5 years					
5 to 10 years					
10 to 15 years					
15 to 20 years					
20 to 25 years					
25 to 30 years					
30 to 35 years					
above 25 years					

statistically different for mobile or non-mobile, willing to be mobile or non-mobile, gender, housing status, marital status, spouse employed, spouse willing to move.

Research Question 21. What percentage of the respondents agree or disagree that geographic mobility is necessary to adequately prepare civilian logisticians for senior level management positions? The analysis and display of the data will be the same as that used for research question 20.

Research Question 22. What percentage of the respondents agree or disagree that it is possible to receive career broadening experience without being geographically mobile? The analysis and display of the data will be similar to that used for research question 20.

Research Question 23. What percentage of the respondents agree or disagree that geographic mobility is necessary to enhance their careers? The analysis and display of the data will be similar to that used for research question 20.

Research Question 24. What percentage of the respondents agree or disagree that being geographically mobile has been beneficial to their careers? The analysis and display of the data will be similar to that used for research question 20.

Research Question 25. What type of career expectations do the respondents have for the rest of their

Air Force careers? The sample respondents will again be divided for each demographic characteristic. The number of respondents who indicated they believed that they had a realistic opportunity for each possible answer, no further promotions, or one, two, three, or four or more promotions, will be tallied. The data will be displayed in a form similar to Table V.

Summary

This chapter has described the methodology for the completion of the four phases of the research effort. In Phase One, the research was defined, the objectives and questions enumerated, and the literature reviewed. During Phase Two, a method for generating the necessary data was developed and a plan was outlined for use in collecting the data. This chapter described the population for study as Air Force civilian logisticians currently employed in the exclusive LCCEP series at the GS-12 to GM-15 levels. Although there are several data bases which contain some mobility history of Air Force civilian logisticians, neither these nor the literature review could provide all the data required on the subject of geographic mobility. A survey instrument was selected as the best device to gather the data needed to describe the geographic mobility of civilian logisticians. The population will be surveyed by a mail questionnaire using a simple random probability

sampling technique. Using the evaluation criteria described in this chapter, the survey respondents will be classified as "non-mobile," "mobile," or "highly-mobile." The data collection plan explained how the survey instrument will be administered during the follow-on research effort in Phase Three. The analysis and display techniques that will be employed to analyze each of the research questions were also provided. These analyses will be used during Phase Four of the follow-on research effort. Chapter IV will explain how the questions on the survey instrument were developed, pretested, improved and validated.

IV. The Survey Questionnaire

Questionnaire Development

This chapter details the procedure used to develop the survey instrument that began with a description of the required data and resulted in a valid and reliable research questionnaire. As outlined in Chapter I, this research effort was designed as a four-phase project. The research questionnaire, which is the final product of Phase Two and this current research effort, was developed iteratively as information about the subject of geographic mobility became known to the researcher.

In Chapter III, it was determined that the most economical method of data collection, in terms of time and money, would be to develop and administer a new survey instrument. The large size of the sample and the time involved in administering a survey of this size, required a survey instrument that could produce consistent and reliable data. The development of this survey instrument is outlined in this chapter.

Preliminary Survey. The initial questionnaire was developed by determining what questions should be asked to answer the research questions. The initial questionnaire is shown at Appendix A of this report. The questions

were developed by the researcher based upon her knowledge of survey development and the information about personnel mobility known at that time. The opinions of selected members of the study population, and the opinions of this thesis committee, were also solicited and included in the initial questions.

After calculating the size of the sample, it was determined the survey respondents would be asked to complete the AFIT Data Collection Form 11D, which can be optically scanned by computer. This decision was made to save time and reduce errors which might occur in manual data input. The decision required the questions be asked and arranged in such a way that the respondents could easily transfer their responses to the optically scanned form.

The preliminary questionnaire was divided into three parts. Part I contained a listing of factors which might influence the mobility decisions of the respondents. Four questions were structured to allow each respondent to assess the relative importance of the factors on the mobility decisions. The respondents were asked to cite which factors actually influenced them to decline or accept previous job offers involving a geographic move and which factors would influence them to decline or reject future jobs involving such a move. The responses to these

questions would then be used to rank the factors which most influenced mobility decisions.

Part II of the survey provided a listing of the major Air Force organizations which have substantial numbers of logistics positions. The questions required the respondent to indicate those locations for which he/she would most likely accept a lateral assignment, a single grade promotion or a two-grade promotion. It also asked at which locations the respondent would never accept a job under any circumstances. The respondent could select from one to four locations to answer these questions. An "other" response was also included.

Part II also requested information concerning the number and pattern of any geographic moves made by the respondent. This information would then be used to determine the extent of mobility of each individual. Comparisons and measures of central tendency could be made using the different demographic items, i.e. location, age, grade or series, and family status from all respondents. These questions could be used to determine which major logistics locations were most desirable, which were least desirable, and to rank the locations accordingly. Future patterns of mobility might result from this analysis.

Questions in Part III were designed to solicit the respondents' opinions on certain mobility issues. A five-part Likert scale was used to classify the strength of the

respondents' opinions. The responses to these questions were to provide insight into the mobility decisions of the respondent. The opinions about the importance of mobility might be used as an indicator of future mobility problems and/or possible solutions.

Part IV requested personal information necessary to identify the demographic characteristics of the respondent. The data resulting from the completed survey could then be expressed as measures of central tendency by the various demographic characteristics of the respondents, i.e., the level of mobility of females at one geographic location compared to other geographic locations, and so forth.

Preliminary Survey Pretest. The original survey questionnaire was pretested at Headquarters, Air Force Logistics Command, Wright-Patterson Air Force Base, Ohio. Twenty people from the Materiel Management Directorate volunteered to participate. Eighteen actually completed the questionnaire.

In addition to completing the questionnaire, the pretest participants were asked to show the time required to complete the survey, the time required to transfer their responses to the AFIT Form 11D, and whether they would respond if they received the survey in the mail. The time to complete the survey ranged from ten to fifty minutes.

The time required to annotate the Form 11D ranged between three and twenty-eight minutes. The mean total time required to complete the survey was 42.8 minutes. Nine participants stated that they would respond to a mail questionnaire, six would not, and three had no opinion.

The great variance in the time required to complete the survey appeared to be due to some confusion about whether to answer on both the questionnaire and the AFIT Form 11D or to place answers immediately and directly on the AFIT Form 11D. Those who had placed their answers directly on the AFIT Form 11D required the least time to complete the survey. Those who first annotated their answers on the questionnaire and then transferred the responses to the AFIT Form 11D required the most time. While reducing the time required to complete the survey was desirable, there was no way to validate proper completion of the form when only the AFIT Form 11D was used. Therefore, the instructions for using the AFIT Form 11D were clarified as a result of this pretest.

Another outcome of the pretest was identification of an inconsistency between the researcher's list of factors that might influence the mobility decision and the interpretation of those factors by the pretest participants. The pretest participants provided many comments about (1) the difficulty of knowing what was meant by the

factors shown, and (2) duplication or overlap of various factors.

Based upon the literature review, it was determined that the list of possible factors would have to be reduced in number to preclude redundancy. The pretest also showed that placement of the possible geographic locations in Part II, was a problem when the questions using the listing covered more than one page. In addition, multiple entries for one question were very difficult to handle when performing the computer analysis of the data. Therefore, the questions had to be structured so that only one response would be required for each question.

These problems and inconsistencies indicated that additional research and revision would be necessary before the questionnaire could be approved or used.

Development of the Factors of Mobility. The review of the social science literature showed a moderate relationship between turnover and transfer (42:492). Although a strong relationship remains to be proven statistically significant, many of the same factors which impact the decision to change jobs by turnover from the organization also impact the decision to change jobs by transfer within the organization. The whole purpose of connecting the two forms of behavior was to identify the potential factors to be offered as choices on the survey

questionnaire. The review of the social science literature did provide a listing of possible factors which might influence the turnover decision. See Table VIII.

Much of the more recent literature suggested that although there are direct relationships between many different individual factors or combinations of factors and the turnover or transfer decision, other intervening or confounding factors may also be involved. The conclusions of such reports as Steel and Ovalle (76:673-686), Jackofsky and Peters (42:490-495), Thompson and Terpening (77:655-682), Clegg (21:88-101), and Mobley et al. (58:408-414), have emphasized that the factors seem to influence each other as much as they influence the mobility decision. Four kinds of factors, i.e. affective, behavior, biographical, and situational factors, should be considered as possible sources of influence on the turnover and transfer decisions (21:88-101). Each of the factors, shown in Table VIII, play a role in the turnover or transfer decision process and none can be discarded or shown to be most influential. It is the combinations of these factors that influence the geographic availability or transfer decision process.

Another method of developing the factors to be used on the survey was suggested by the faculty at AFIT. This section describes this approach and how the factors appearing on the completed survey were finally selected. The

TABLE VIII

FACTORS INFLUENCING THE TRANSFER DECISION PROCESS
(80; 58:410; 77:665)

Transfer Factors		
Personal	**Job Situation**	**Job Satisfaction**
Education	Job scope	Work itself
Own house	Job level	Supervisor
Age	Role stress	Pay
Sex	Work group size	Promotion
Marital status	Leader style	Co-workers
Family size	Co-worker relations	
Family responsibilities	Opportunity for advancement	
Community/Social	Incentives and rewards system	

Behavioral	External
Work commitment	Economic/market conditions
Organizational commitment	Probability of finding an acceptable alternative
Personal work ethic	
Intentions	

suggestion was to utilize a mini-survey, comprised of open-ended questions, to solicit those factors which truly affected geographic mobility decisions. The benefit of this approach was that the factors would then be phrased in words commonly used by the study population. Four open-ended questions were developed which requested reasons for the past and present geographic mobility decisions. These questions were similar to those questions found in Part I of the survey, and appear at Appendix B.

The mini-survey was distributed to forty volunteers from the Directorates of Distribution and Maintenance, Headquarters Air Force Logistics Command. Twenty-eight responses were returned. From the twenty-eight respondents, one hundred and twelve differently worded reasons were received. Each of the respondents worded their responses in slightly different ways. By grouping responses using the same types of keywords, this list was narrowed to ninety responses. Of the factors listed, many of the reasons given for <u>not</u> being geographically mobile by one person were the same reasons given <u>for</u> being mobile by another person. This duplication helped to identify factors which had both positive and negative impact on the mobility decision. The purpose of this factor survey was to identify those factors, in the words of the participants, that could be listed on the completed survey questionnaire. The researcher then extracted similar factors and grouped them

by categories shown at Appendix C. The categories were derived from the turnover literature described in this report. This method of grouping seemed to diminish the benefits for which the factor survey was administered in the first place; namely, that of using the factors and words of members of the population. It was further apparent that ninety factors could not be listed as choices on the questionnare to be administered to 3000 civilian logisticians. Therefore, some method, other than the judgement of the researcher, would have to be used to group the responses into categories which could be listed on the questionnaire.

Matching Factors to Broader Categories. A two-by-two factorial experiment was then designed to group the factors into more encompassing categories which would be consistently recognized by the survey participants. These more general categories would then be offered as possible responses on the survey questionnaire itself. If the survey respondents used similar language to describe their feelings about mobility, the survey results could then be generalized to the population.

Logistics students of AFIT's Professional Continuing Education courses were asked to participate in the experiment. Care was taken to ensure the volunteers were members of the population of civilian logisticians. These

volunteers were assigned to one of four subgroups. The subgroups, depicted in Figure 4, were provided varying amounts of information about the turnover factors and categories.

The Group One volunteers were given cards indicating the individual factors, shown in Appendix C, and were asked to group them with another set of cards indicating categories derived from the turnover literature review, also shown in Appendix C. Any grouping of identical factor and category pairs that were identified by more than 70 percent of the participants was automatically included in the survey instrument. Any of pairs that was identified by less than 70 percent of the participants was evaluated further on the basis of language similarities, prior to inclusion in or exclusion from the final questionnaire. Any factor or category not grouped by the participants was analyzed for pertinency and rewording, re-grouping, or elimination from consideration.

The Group Two volunteers were asked to group the individual factors, shown in Appendix C, into categories of their own choosing. Blank cards were provided to allow these participants to supply and word their own grouping categories. Similar groupings with different names were compared and wordings chosen by the majority of the participants were used in the final questionnaire.

	Categories Provided	Categories Not provided
Factors Provided	Group One Received both factors and categories Performed matching	Group Two Received factors only Groups factors with categories of their own choosing
Factors Not Provided	Group Three Received categories Wrote own individual factors and grouped these with the categories	Group Four Did not receive either factors or categories Wrote own factors and then grouped them into categories of their own choosing

Fig. 4. Factor/Category Grouping Experiment

The Group Three volunteers were given the same category cards as Group One and asked to list individual factors of their own choosing on separate blank cards. This group was used to determined if the categories being tested were consistently recognized and similarly understood by the participants in the experiment.

The Group Four volunteers were asked to list at least ten factors they believed might influence the geographic mobility decisions of civilian logisticians. These factors were of their own choosing. They were then asked to group these factors into broader categories.

Volunteers were assigned to groups based upon their arrival at the experiment site. Care was taken to avoid bias of the participants prior to experiment. The participants were asked not to discuss the experiment with their classmates, but only to encourage them to participate. Only occupational series, grade, age, and employment location were collected from the participants.

The entire experiment was designed to help the researcher present categories of specific factors which would be consistently recognized by the respondents in the final survey. The number of participants was not as great as originally planned for and the results could not be analyzed statistically. Groups Three and Four seemed to have more difficulty and required more time to complete their tasks. Each of the groups, in one way or another,

emphasized the fact that all factors could never be shown and that category names could never be developed which would be universally recognized by every participant in the complete survey. However, the experiment was of great benefit to the researcher, who used the participants' comments and groupings, combined with the results of the turnover literature review, to arrive at the final categories for the survey. The resulting categories, with example factors listed, are shown in Table IX.

The Completed Questionnaire

The completed questionnaire is shown at Appendix D. It has been approved for use by the AFIT, the Military Personnel Center, and AFCPMC. The Survey Control Number is 86-95.

The completed questionnaire consists of four parts. Part I contains twenty-six questions designed to collect information from Air Force civilian logisticians about the extent of past mobility, the patterns of prior mobility, the currency of mobility, and the most acceptable and least acceptable locations for possible geographic moves. Part II contains twelve questions designed to elicit the factors which influenced respondent mobility decisions in the past and at the present time. In Part II, the listing of possible categories of factors and examples of specific factors, as shown in Table IX, is included

TABLE IX

HIERARCHY OF MOBILITY FACTORS

Personal	Personal considerations	Personal health
		Personal education
		Personal travel
		Pending retirement
		Better retirement pay
		Retirement location
		Reserve commitment
	Family	Spouse's health
		Spouse's career
		Parents' health
		Parents' age
		Children's health
		Children's education
		Children's age
		Family's commitment
		Turmoil of move
		Hard to start over
	Social/Community	Friends/neighbors
		Church
		Community
		Size of community
External	Geographic Location	Distance to family
		Area of country
		Climate/weather
	Economics/Finance	Cost of housing
		Mortgage rates
		Difficult to sell
		Local economy
		Cost of living
		Personal investments

TABLE IX--Continued

The Job	Job relationships	Coworker relationships
		Supervisor relationships
		Management relationships
		Organization's reputation
	Job opportunities	Job challenge
		Promotion potential
		Career development
	Job compensation	Salary
		Performance awards
		Personal recognition
	Job situation	Type of work
		Supervisory level
		Tenure in organization
		Growth potential
		Training opportunity
		Variety
		Autonomy
		Job responsibility

to indicate possible choices. Part III contains six questions which are intended to elicit the opinions of the respondents about the importance of mobility to Air Force managers and to them personally. Part IV contains twelve questions which describe the personal demographic characteristics of the respondents. These characteristics will be used to group the sample respondents by like categories in order to analyze the extent of mobility, the factors influencing mobility, and the possible future mobility of Air Force civilian logisticians. The analysis of the collected data was previously described in Chapter III.

The questionnaire is structured for readability, ease of use, and ease of computer analysis. Only one response is allowed per question, but several questions are used for ranking responses. The order of the questions and their placement on the page is congruent with accepted principles of questionnaire organization. Paul B. Sheatsley points out in the Handbook of Survey Research that while there are no pat or simple rules for questionnaire writing, five generally applicable steps are (70:202):

1. Decide what information is required;
2. Draft questions to elicit that information;
3. Put the questions into a meaningful order and format;

4. Pretest the result;

5. Go back to step one.

Sheatsley stated that a well-designed questionnaire should meet the objectives of the research, obtain the most complete and accurate information possible, and stay within the limits of available time and resources (70:201). The completed survey followed these guidelines. However, as observed earlier, due to the cost and time expense of administering the survey to a sample size of 3000, the survey must also have been demonstrated to be both reliable, provide the required information, and consistent, provide similar results across the full range of the respondents. This was necessary in order to be able to generalize the results to the overall population of Air Force civilian logisticians. Therefore, a final pretest was undertaken to insure the completed survey's reliability and consistency.

The Completed Survey Pretest

The pretest of the completed survey questionnaire was conducted in the Plans and Programs Directorate, Headquarters Air Force Logistics Command. Twenty-five members of the population volunteered to complete the questionnaire as if they had received it by mail. They were asked to indicate the time required for completion and whether they would respond if they had received the questionnaire by

mail. Other comments on the content of the questionnaire were also solicited, at the discretion of the participants.

For the seventeen volunteers who responded to the survey, the average time required to complete the questionnaire was 25.2 minutes. Although the number of questions in the completed survey increased by 12 over the preliminary survey the time required to complete the survey decreased by 17.6 minutes. This reduction in the time required to complete the survey suggests that the completed questionnaire may be less confusing, more direct, and easier to follow.

None of the problems indicated in the pretest of the preliminary survey were encountered with the completed questionnaire. All respondents completed the AFIT Form 11D. Each of the categories provided as possible choices as factors which influenced mobility were selected by at least three of the respondents. This indicated better recognition of the possible choices by the respondents than was evidenced in the pretest of the preliminary questionnaire. The respondents did not provide any adverse comments about the layout or placement of any of the questions. Of the 884 answers for all questions, from the respondents, only three answers were missing or incorrect.

As a result of this pretest of the completed survey, only one change was made and that was intended to assist the respondents in answering and transferring their

responses to the AFIT Form 11D. If the response "none" was shown as a possible response, it was the "a" response in each part of the survey. Therefore, in Part I, response "a" indicated "none" for location, and "never" for the date of the move. In Part II, "a" indicated "none" as a factor influencing mobility; and in Part IV, if none could be a response, it was also shown as response "a". No other changes to the completed questionnaire were required based upon the results of the pretest.

Summary

This chapter provided information about the development of the survey questionnaire. The questionnaire evolved through a series of iterative steps including: (1) a preliminary survey, (2) a pretest of the preliminary survey, (3) a mini-survey to determine the factors influencing mobility, (4) an experiment to determine possible factor and category groupings which would be recognized by the majority of the respondents, (5) completion of the questionnaire, and (6) pretest of the completed survey questionnaire. This process has yielded a survey questionnaire which will provide the data needed to answer the research questions and satisfy the research objectives. Phase Two of this research effort was completed with the final pretest of the completed questionnaire.

V. Conclusions and Recommendations

Summary

As outlined in Chapter I, this research project was conceived to obtain information about the extent of mobility of Air Force civilian logisticians, to identify patterns of mobility of civilian logisticians, to identify the factors that influence the mobility decisions of individual civilian logisticians, and to solicit the opinions of civilian logisticians concerning the subject of mobility. Information about mobility is of value to the Air Force because of its potential use in evaluating current civilian mobility policies and programs. This evaluation may result in changes in the current mobility orientation, emphasis, or incentives.

A four-phase approach was used to pursue this goal. During Phase One a search for documentation of mobility issues was conducted within the general U.S. work force and the Air Force. Background information resulting from that literature review established that top management officials in U.S. firms are concerned about the declining mobility of employees and have initiated a series of actions to address this issue. Managers in these U.S. firms are evaluating the reluctance of their employees to move, providing employee relocation services, and

recognizing that many factors may influence the mobility decisions of their employees.

These same concerns have been voiced by top Air Force managers yet a review of Air Force literature revealed no current studies about the level of mobility of Air Force civilians. In addition, when existing Air Force data systems were evaluated for usefulness in providing this information, the data was either unattainable, required a dedicated large scale computer programming effort, or the effort required to extract the data was far too great for any single research effort. The resulting solution was to develop data based upon the responses and opinions of the members of the population involved.

The data collection plan was developed during Phase Two. While information concerning all Air Force civilian employees may be of benefit, the size of this population was far too great and diverse to be manageable in a single research effort. Therefore, the mid-level civilian employees registered in the LCCEP were chosen as the study population. The method of data collection which was most appropriate to that population was the administration of a survey questionnaire by mail. Due to the size of the population, the stratification of the population into occupational series and grade combinations, and the expected return rate, a sample size of 3000 was required.

Because of the size of the required sample and the cost in time and dollars to administer a survey of this size, the survey questionnaire had to be carefully developed to ensure that the questions asked would provide the information required. The questionnaire was completed through an iterative process, beginning with the development of a preliminary questionnaire. The pretest of this preliminary questionnaire showed that more research and revision was required before the questionnaire would be ready for approval and use.

The factors influencing mobility were identified using two sources: (1) a complex literature review, and (2) a series of open-ended questions were submitted to members of the study population requesting they identify the factors that had influenced their mobility decisions. An experiment was performed to match the factors, in the words of the population members, with the categories of factors derived from the turnover literature. The listing of categories and example factors, which resulted from that experiment, has been used to develop the possible factors in the completed survey questionnaire.

The completed survey questionnaire was then pretested to determine if it would produce consistent results, whether it was easy to use and understand, and whether the results would provide the required data. This completed survey was found to be both reliable and consistent. The

survey was approved for use throughout the Air Force by the AFCPMC. This approval constituted the completion of Phase Two of the research effort.

Planning for Phase Three, data collection, was conducted concurrent with the development of the data collection plan. In fact, it was during the planning for Phase III that the research committee determined that Phase Three would be outside the scope of this research effort. However, all that remains to be completed in Phase Three is actually mailing the survey to the randomly selected survey participants.

The information which answers the research questions should be available after Phase Four, analyses of the survey data. These analyses were planned during Phase Two to insure that the correct data would be available from the survey. The various displays of the resulting information were also planned during Phase Two and samples of these displays were included in Chapter III of this thesis. Therefore, the only task that remains to be completed in Phase Four is to follow the data collection plan, to analyze the data using the computer statistical program, and to display the results.

Conclusions

There are several conclusions which can be drawn from this research effort. These conclusions have been

addressed elsewhere in this report but are listed here for emphasis. The first concerns the value of mobility data to both top and mid-level Air Force managers. The importance of information about the level of mobility of civilian logisticians had been documented. The complex review of the literature lends credence to this conclusion. The information provided by this research could be of value to senior Air Force management and other interested parties.

The second conclusion concerns the lack of existing data concerning Air Force civilian employees. The keywords and fruitful and unfruitful sources of literature are documented in Chapter III. This documentation should assist other researchers by showing what literature has already been searched. The few references to geographic mobility contained in Air Force documentation and certain discussions with senior Air Force managers were identified and described. No data base currently exists which can serve to provide these military managers with the ability to answer either the research questions or many other questions about the level of mobility of Air Force civilian logisticians. In other words, everyone complains about the lack of Air Force civilian logistician mobility, but it is difficult to find or report any facts about it.

The third conclusion concerns the data collection plan developed for this research effort. Administration of a newly developed, proven, and approved survey questionnaire

is the best way to gather original data from the best source, the Air Force civilian logisticians themselves. The Civilian Logisticial Mobility Survey is both valid and consistent and will be used to gather the appropriate data.

The fourth, and final, conclusion concerns Phases Three and Four of this research approach. When the completed survey questionnaire is used, according to the data collection plan, and these final two phases are completed, the information required to answer the research questions will then be available in An Analysis of the Status of and Factors Influencing Mobility of the Air Force Civilian Logistician, Part II.

Recommendations

It is recommended that the insight provided by this research be used by Air Force senior management to insure that policies, procedures, and career programs support placing the best qualified person in the right job--not to merely offer these jobs to those currently willing to move.

Appendix A: Preliminary Questionnaire

AFIT/LSG (Carol J. Felici, 255-6569) 24 April 1986

Research Questionnaire

Dear Civilian Logistician

1. You are asked to participate in a pre-test of the attached survey to determine whether the survey instrument is a valid and reliable measure of civilian logistician mobility. Your assistance is required to determine whether this survey will yield consistent results and to identify any errors or problems with the survey itself.

2. In addition to any comments you may wish to provide, please also indicate how long it took you to complete the survey and annotate the AFIT Data Collection Form 11D. Please put these times in the space provided below. Please use the attached envelope for your completed response. I will return on Friday morning, 25 April 1986, to pick up the envelope.

3. Please be assured that all information you provide will be kept strictly confidential. Your responses will not be attributed to you personally.

4. Your parrication is completely voluntary, but I would certainly appreciate your help.

CAROL J. FELICI
AFIT/LSG Graduate Student
School of Systems and Logistics

3 Atch
1. Questionnaire
2. AFIT Data Collection Form 11D
3. Response Envelope

TIME REQUIRED TO COMPLETE SURVEY _____ MINUTES.

TIME REQUIRED TO ANNOTATE FORM 11D _____ MINUTES.

IF YOU RECEIVED THIS SURVEY IN THE MAIL, WOULD YOU RESPOND?
Please circle your response. YES NO

OTHER COMMENTS:

THE CIVILIAN LOGISTICIAN MOBILITY SURVEY

The following survey is designed to collect information which will be used to describe how geographically mobile civilian logisticians are, to determine patterns of mobility, and to identify factors contributing to, or hindering, individual mobility. All information will be kept strictly confidential. Only data summaries and analyses, not individual data, will be presented in the completed report.

The survey is in four parts. Part I requests your opinions concerning the factors influencing your mobility decisions. Part II requests information about your mobility history. This information will be used to analyze the extent of mobility of Air Force civilian logisticians of GS/GM-12 and above. Part III requests your opinions about the use of mobility in current Air Force programs. This information will be summarized and then used to make recommendations concerning these programs. Part IV will be used to group your responses with those of the other respondents to describe and compare different levels of mobility. These demographics will be used to portray mobility patterns.

To ensure that the survey results are representative of Air Force civilian logisticians, it is necessary to collect information from a large number of people such as you. Please take just a few more minutes and complete the attached AFIT Data Collection Form for questions 1 to 38.

Please enter the four-digit numeric indicator for your job series on the data collection form in the upper left corner in the block indicated for social security account number. Do not indicate your social security account number. For example, if your series is 0346, please insert 0346 in the first four rows and darken the appropriate circles. Please be sure to use all four positions of the series number.

If you wish to indicate more than one response for any question, please darken the letter of each response which applies.

Part I

1. Have you ever changed geographic location to accept a reassignment or promotion for a GS/GM-12 position or higher?

   a. Yes b. No

   The following list contains some of the factors which are potentially relevant to decisions concerning mobility:

   a. Advice of others
   b. Current job situation
   c. Current job relationships
   d. Personal satisfaction
   e. Personal goals
   f. Personal educational goals
   g. Personal health
   h. Health of family member
   i. Opportunities for other family members
   j. Children in school
   k. Spouse's career
   l. Quality of life
   m. Social opportunities
   n. Civic service
   o. Outside investments
   p. Salary increase
   q. Cost of living
   r. State of the US economy
   s. DOD budget
   t. Political risk
   u. Reduction in force
   v. Future job potential
   w. Future job situation
   x. Future job relationships
   y. Geographic location
   z. Timing
   0. Non-AF DOD job opportunity
   1. Non-DOD job opportunity
   2. Outside employment
   3. Other (please explain)
   4. None

   Use the above list of factors to answer Questions 2 to 5. If the factor(s) you want is shown, please indicate the letter(s) only. However, if the factor you want is not shown, please explain in the space allowed. You may list from one to four primary factors for each question.

2. If you have made a geographic move to accept a reassignment or promotion, please list the primary factors which most influenced your decision to move.

   _____

   _____

3. If you have ever failed to apply for a position at another geographic location, please list the primary factors which most influenced your decision <u>not</u> to move.

   _____

   _____

Part I--Continued

4. If you were offered a job today at another geographic location, what primary factors would most entice you to make the move?

_____

_____

5. If you were offered a job today at another geographic location, what primary factors would most influence your decision not to move?

_____

_____

Part II

Following is a partial list of major AF organizations which have substantial numbers of civilian logistics positions:

a. HQ USAF/Pentagon, Wash DC
b. HQ AFLC/Wright-Patt AFB OH
c. OO-ALC/Hill AFB, UT
d. OC-ALC/Tinker AFB, OK
e. SA-ALC/Kelly AFB, TX
f. SM-ALC/McClellan AFB, CA
g. WR-ALC/Robins AFB, GA
h. CASC/Battle Creek, MI
i. AD/Eglin AFB, FL
j. ASD/Wright-Patt AFB, OH
k. BMO/Norton AFB, CA
l. ESD/Hanscom, MA
m. SD/Los Angeles, CA
n. Other (please explain)

Use the above list of geographic locations to answer Questions 6 to 26. If the location you want is shown, please darken the letter on the data collection form. If the location you want is not shown, please use the space provided to explain your answer. You may indicate from one to four locations to answer the following questions as applicable.

6. Please indicate your current geographic location.

_____

Part II--Continued

7. Please indicate the primary geographic location(s) at which you would accept a lateral reassignment.

_____

8. Please indicate the geographic location(s) at which you would accept no less than a single-grade promotion.

_____

_____

9. Please indicate the geographic location(s) at which you would accept no less than a two-grade promotion.

_____

_____

10. Please indicate any geographic location(s) at which you would never accept a position under any circumstances.

_____

_____

11. Please indicate any geographic location(s) that would entice you to make a move? Please explain.

_____

_____

12. If you changed geographic locations to accept a GS/GM-12 position, please indicate in which year the move occurred.

a. Never	d. 1975-1979
b. Prior to 1970	e. 1980-1984
c. 1970-1974	f. 1985-1986

13. If you changed your geographic location to accept a GS/GM-12 position, please use the list above to indicate which location you moved from.

_____

14. If you changed your geographic location to accept a GS/GM-12 position, please use the list above to indicate which location you moved to.

_____

15. If you changed geographic locations to accept a GS-GM-13 position, please indicate in which year the move occurred.

a. Never	d. 1975-1979
b. Prior to 1970	e. 1980-1984
c. 1970-1974	f. 1985-1986

Part II--Continued

16. If you changed your geographic location to accept a GS/GM-13 position, please use the list above to indicate which location you moved from.

_____

17. If you changed your geographic location to accept a GS/GM-13 position, please use the list above to indicate which location you moved to.

_____

18. If you changed geographic locations to accept a GS/GM-14 position, please indicate in which year the move occurred.

a. Never	d. 1975-1979
b. Prior to 1970	e. 1980-1984
c. 1970-1974	f. 1985-1986

19. If you changed your geographic location to accept a GS/GM-14 position, please use the list above to indicate which location you moved from.

_____

20. If you changed your geographic location to accept a GS/GM-14 position, please use the list above to indicate which location you moved to.

_____

21. If you changed your geographic location to accept a GM-15 position, please indicate in which year the move occurred.

a. Never	d. 1975-1979
b. Prior to 1970	e. 1980-1984
c. 1970-1974	f. 1985-1986

22. If you changed your geographic location to accept a GM-15 position, please use the list above to indicate which location you moved from.

_____

23. If you changed your geographic location to accept a GM-15 position, please use the list above to indicate which location you moved to.

_____

Part II--Continued

24. If you changed your geographic location to accept an SES position, please indicate in which year the move occurred.

a.	Never	d.	1975-1979
b.	Prior to 1970	e.	1980-1984
c.	1970-1974	f.	1985-1986

25. If you changed your geographic location to accept an SES position, please use the list above to indicate which location you moved from.

_____

26. If you changed your geographic location to accept an SES position, please use the list above to indicate which location you moved to.

_____

Part III

The following questions are designed to provide information about the mobility issue. The information will be used to make recommendations concerning current Air Force programs involving geographic mobility. Please indicate the response that most closely matches your opinion on the question. Please explain your answer, include extra pages if necessary.

27. There are formal or informal policies which inhibit you from seeking a geographic move. Please explain your answer.

a.	Strongly agree	d.	Disagree
b.	Agree	e.	Strongly disagree
c.	No opinion		

_____

_____

_____

_____

Part III--Continued

28. Mobility is important to you personally. Please explain your answer.

a. Strongly agree
b. Agree
c. No opinion
d. Disagree
e. Strongly disagree

_____

_____

_____

_____

29. Mobility of civilian logisticians is important to the Air Force. Please explain your answer.

a. Strongly agree
b. Agree
c. No opinion
d. Disagree
e. Strongly disagree

_____

_____

_____

_____

30. The current emphasis placed on mobility by our AF leaders and career programs is correct. Please explain your answer.

a. Strongly agree
b. Agree
c. No opinion
d. Disagree
e. Strongly disagree

_____

_____

_____

_____

Part IV

The following information will be used to group the responses to the above questions in order to describe and compare different levels of mobility. All information will be kept strictly confidential. Only data summaries and analyses will be used in the final report.

31. Total years of federal service?

a. less than 5 years
b. 5 to 10 years
c. 11 to 15 years
d. 16 to 20 years
e. 21 to 25 years
f. 26 to 30 years
g. 31 to 35 years
h. more than 35 years

32. Number of years of previous military service?

a. less than 5 years
b. 5 to 10 years
c. 11 to 15 years
d. 16 to 20 years
e. 21 to 25 years
f. 26 to 30 years
g. 31 to 35 years
h. more than 35 years

33. Your current grade level?

a. GS/GM-12
b. GS/GM-13
c. GS/GM-14
d. GS/GM-15
e. SES

34. The following logistics functions are the Logistics Center Group functions identified by the Logistics Civilian Career Enhancement Program. Please darken the letter of the function which most closely represents the nature of the job you are currently performing.

a. Transportation
b. Supply & Distribution
c. Maintenance
d. Materiel Management
e. International Logistics
f. Acquisition Logistics
g. Logistics Plans
h. Quality Assurance

35. a. Male b. Female

36. a. Rent b. Own Home

37. Age?

a. less than 35 years
b. 36 to 46 years
c. 46 to 55 years
d. more than 55 years

38. a. Single b. Married c. Not-married

39. If married, occupation of spouse? _____

40. Age(s) of Dependents? _____

41. Job Title? _____

42. The first two letters of your office symbol? _____

This concludes the survey.
Thank you for your participation

Appendix B: The Factors of Mobility Survey

Information received from your responses to the following questions will be used to design a survey to collect information about the mobility decisions of Air Force civilian logisticians. The completed survey will be used to describe how geographically mobile civilian logisticians are, to determine patterns of mobility, and to identify factors contributing to, or hindering, individual mobility. All information will be kept strictly confidential, individual data will not be presented in the completed report.

1. If you have ever made a geographic move to accept an Air Force civilian position, please explain what factors most influenced your decision to move.

_____

_____

_____

_____

2. If you ever decided not to apply for a position at another geographic location, please explain what factors most influenced your decision not to move.

_____

_____

_____

_____

3. Assume you are offered a job today at another geographic location and you decide to move, explain what factors would most influence your decision.

_____

_____

_____

_____

4. Assume you are offered a job today at another geographic location and you decide not to move, explain what factors would most influence your decision.

_____

_____

_____

_____

This concludes the survey.
Thank you for your participation.

Appendix C: The Factors of Mobility

Personal	Health		Personal health
	Opportunities		Personal education
			Personal travel
	Age		Pending retirement
			Better retirement
			Retirement location
	Commitments		Reserve commitment
	Family	Spouse	Spouse's health
			Spouse's career
		Parents	Parents' health
			Parent's age
			Distance to parents
		Children	Children's health
			Children's education
			Age of children
		Family ties	Family's commitment
			Turmoil of move
			Hard to start over
	Community	Relationships	Friends/Neighbors
			Church/Community
	Location		Geographic location
			Climate/weather
	Economics	Housing	Cost of housing
			Mortgage rate
			Difficult to sell
		Financial	Local economy
			Cost of living
			Personal investments
			Risks
			Benefits
The Job	Job satisfaction	Relationships	Coworkers
			Supervisor
			The organization
		Opportunities	Job challenge
			Promotion potential
			Career development
		Compensation	Salary
			Performance awards
			Recognition
	The job itself	Job scope	Type of work
			Supervisory level
			Time on the job
			Job interest
			Growth potential
			Training opportunity
			Job breath
			Job depth
			Responsibility

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OH 45433-6583

Appendix D: The Civilian Logistician Mobility Survey

REPLY TO ATTN OF: LS (Carol J. Felici, AV 785-6569)

SUBJECT: Research Questionnaire

TO:

1. Please take the time to complete the attached questionnaire and return it in the enclosed envelope by 31 Oct 1986.

2. The Logistics Civilian Career Enhancement Program (LCCEP) was established in 1980 to encourage and manage the development of logistics personnel to their fullest potential to meet the needs of the Air Force. LCCEP strongly emphasizes mobility as a method of career enhancement and as a tool to match the right people with the right jobs. However, little is actually known about who moves and why.

3. This research effort was initiated to gather information about civilian logistician mobility. You are being asked to participate in this research effort because you are an Air Force civilian employed in a logistics-related position.

4. Please be assured that all information you provide will be kept strictly confidential. Your responses will not be attributed to you personally. Only data summaries and analyses will be included in the final research report.

5. Your participation is completely voluntary, but your response to this survey is critical to this research effort. Therefore, please take the time to share your experience and opinions about mobility.

DAVID E. LLOYD, Lt. Colonel, USAF
Director,
Graduate Logistics Management Program
School of Systems and Logistics

3 Atch
1. Questionnaire
2. AFIT Data Collection Form
3. Return Envelope

THE CIVILIAN LOGISTICIAN MOBILITY SURVEY

The following survey is designed to collect information which will be used to describe how geographically mobile civilian logisticians are, to determine patterns of mobility, and to identify factors contributing to, or hindering, individual mobility.

The survey is in four parts. Part I requests information about your mobility history. This information will be used to analyze the extent of Air Force civilian logistician mobility. Part II requests your opinions about the factors which influence your mobility decisions. Part III requests your opinions about the use of mobility in current Air Force programs. This information will be summarized and then used to make recommendations concerning these programs. Part IV requests information which will be used to group your responses with those of the other respondents. This demographic information will be used to describe and compare different levels of mobility and to graphically portray mobility patterns. All information will be kept strictly confidential. Only data summaries and analyses, not individual data, will be presented in the completed report.

Work through the survey first and place your answers on the survey itself. After you have completed the survey, transfer your letter responses, for questions 1 to 71, to the attached AFIT Data Collection Form 11D using a soft, number 2 pencil. Enter the four digit numeric indicator for your job series on the data collection form in the upper left corner of the block indicated for social security number. For example, if your series is 0346, please insert 0346 in the first four rows and darken the appropriate circles. Please be sure to use all four positions of the series number. Do not write your name or social security number on the answer sheet.

Please try to return the answer sheet by 31 October 1986 so that the results can be analyzed and presented in the research report. Thank you for your time and cooperation.

PART I

Following is the list of major AF organizations which have substantial numbers of civilian logistics positions:

a. None
b. HQ AFLC/Wright-Patt AFB OH
c. OC-ALC/Tinker AFB, OK
d. OO-ALC/Hill AFB, UT
e. SA-ALC/Kelly AFB, TX
f. SM-ALC/McClellan AFB, CA
g. WR-ALC/Robins AFB, CA
h. AD/Eglin AFB, FL
i. ASD/Wright-Patt AFB, OH
j. BMO/Norton AFB, CA
k. ESD/Hanscom, MA
l. SD/Los Angeles, CA
m. HQ USAF/Pentagon, Wash DC
n. Other (please identify)

Use the above list of geographic locations to answer Questions 1 to 43. If the location you want is shown, indicate the letter only. If the location you want is not shown, indicate "n" and use the space provided to identify the location. For questions 3 to 14, list the locations in order as shown. Complete every question; use "a" where "none" is applicable.

1. Have you ever moved to accept a GS/GM-11 position or higher at another geographic location?

   a. Yes
   b. No

2. Identify your current geographic location.

   _____

   To which geographic location(s) would you accept a lateral reassignment?

3. Most acceptable: _____

4. Second most acceptable: _____

5. Third most acceptable: _____

   To which geographic location(s) would you accept a single-grade promotion?

6. Most acceptable: _____

7. Second most acceptable: _____

8. Third most acceptable: _____

a. None
b. HQ AFLC/Wright-Patt AFB OH
c. OC-ALC/Tinker AFB, OK
d. OO-ALC/Hill AFB, UT
e. SA-ALC/Kelly AFB, TX
f. SM-ALC/McClellan AFB, CA
g. WR-ALC/Robins AFB, CA
h. AD/Eglin AFB, FL
i. ASD/Wright-Patt AFB, OH
j. BMO/Norton AFB, CA
k. ESD/Hanscom, MA
l. SD/Los Angeles, CA
m. HQ USAF/Pentagon, Wash DC
n. Other (please identify)

To which geographic location(s) would you accept no less than a single grade with potential for a two-grade promotion?

9. Most acceptable: _____

10. Second most acceptable: _____

11. Third most acceptable: _____

To which geographic location(s) would you NEVER accept a position?

12. Most unacceptable: _____

13. Second most unacceptable: _____

14. Third most unacceptable: _____

On questions 15 to 43, if you have NOT moved at the indicated grade level, indicate none (a) for the FROM and TO locations. If you have changed your geographic location more than once at each grade level, please use the additional spaces, questions 36 to 43 at the end of Part I, to identify the FROM and TO locations and the job action involved for each additional move at each grade level.

15. How many times have you moved at the GS/GM-11 grade level?

a. None
b. One time
c. Two times
d. Three times
e. Four or more times
f. Have not reached this grade

16. If you changed your geographic location to accept a GS/GM-11 position, use the list above to indicate which location you moved FROM.

_____

17. If you changed your geographic location to accept a GS/GM-11 position, use the list above to indicate which location you moved TO.

_____

18. If you changed your geographic location to accept a GS/GM-11 position, indicate what type of job action was involved.

a. None
b. Lateral reassignment
c. One grade promotion
d. One grade promotion with potential for two grades
e. Other (please specify)

---

19. How many times have you moved at the GS/GM-12 level?

a. Never
b. One time
c. Two times
d. Three times
e. Four or more times
f. Have not reached this grade

20. If you changed your geographic location to accept a GS/GM-12 position, use the list on page 2 to indicate which location you moved FROM.

---

21. If you changed your geographic location to accept a GS/GM-12 position, use the list on page 2 to indicate which location you moved TO.

---

22. If you changed your geographic location to accept a GS/GM-12 position, indicate what type of job action was involved.

a. None
b. Lateral reassignment
c. One grade promotion
d. One grade promotion with potential for two grades
e. Other (please specify)

---

23. How many times have you moved at the GS/GM-13 grade level?

a. None
b. One time
c. Two times
d. Three times
e. Four or more times
f. Have not reached this grade

24. If you changed your geographic location to accept a GS/GM-13 position, use the list on page 2 to indicate which location you moved FROM.

---

25. If you changed your geographic location to accept a GS/GM-13 position, use the list on page 2 to indicate which location you moved TO.

---

a. None
b. HQ AFLC/Wright-Patt AFB OH
c. OC-ALC/Tinker AFB, OK
d. OO-ALC/Hill AFB, UT
e. SA-ALC/Kelly AFB, TX
f. SM-ALC/McClellan AFB, CA
g. WR-ALC/Robins AFB, GA
h. AD/Eglin AFB, FL
i. ASD/Wright-Patt AFB, OH
j. BMO/Norton AFB, CA
k. ESD/Hanscom, MA
l. SD/Los Angeles, CA
m. HQ USAF/Pentagon, Wash DC
n. Other (please identify)

26. If you changed your geographic location to accept a GS/GM-13 position, indicate what type of job action was involved.

a. None
b. Lateral reassignment
c. One grade promotion
d. One grade promotion with potential for two grades
e. Other (please specify)

---

27. How many times have you moved at the GS/GM-14 grade level?

a. None
b. One time
c. Two times
d. Three times
e. Four or more times
f. Have not reached this grade

28. If you changed your geographic location to accept a GS/GM-14 position, use the list above to indicate which location you moved FROM.

---

29. If you changed your geographic location to accept a GS/GM-14 position, use the list above to indicate which location you moved TO.

---

30. If you changed your geographic location to accept a GS/GM-14 position, indicate what type of job action was involved.

a. None
b. Lateral reassignment
c. One grade promotion
d. One grade promotion with potential for two grades
e. Other (please specify)

---

31. How many times have you moved at the GS/GM-15 grade level?

a. None
b. One time
c. Two times
d. Three times
e. Four or more times
f. Have not reached this grade

32. If you changed your geographic location to accept a GS/GM-15 position, use the list on page 4 to indicate which location you moved FROM.

---

33. If you changed your geographic location to accept a GS/GM-15 position, use the list on page 4 to indicate which location you moved TO.

---

34. If you changed your geographic location to accept a GS/GM-15 position, indicate what type of job action was involved.

a. None
b. Lateral reassignment
c. One grade promotion
d. One grade promotion with potential for two grades
e. Other (please identify)

---

35. In which of the following year-groups did you begin work at your current location?

a. Prior to 1970
b. 1970-1974
c. 1975-1979
d. 1980-1984
e. 1985-1986

If you changed your geographic location more than once at the grade levels previously shown, please use the following spaces to identify the grade level, the FROM and TO locations from page 4. Indicate none (a) if no additional moves occurred. The type of job actions are:

a. None
b. Lateral assignment
c. One grade promotion
d. One grade promotion with potential for two grades
e. Other (please specify)

36. Grade level _____

37. Location moved FROM _____

38. Location moved TO _____

39. Type of job action _____

40. Grade level _____

41. Location moved FROM _____

42. Location moved TO _____

43. Type of job action _____

PART II

The following list contains many of the factors which are relevant to decisions concerning mobility:

a. None
b. Personal (health, education, travel, pending retirement, military reserve commitment)
c. Family (spouse's health or career, parents' health or age, children's health, age, or education, family commitments, turmoil of the move, hard to start over)
d. Social (community, friends, neighbors, church, civic)
e. Locale (climate/weather, area of the country, distance to family, retirement location)
f. Economic/Financial (cost of living, cost of housing, mortgage rates, difficulty in selling home, local economy, personal investments)
g. Job relationships (co-worker relationships, supervisory relationships, management relationships, organizational reputation)
h. Job opportunities (job challenge, promotion potential, career development, training opportunities, growth potential)
i. Job compensation (salary, performance and special achievement awards, personal recognition, better retirement pay)
j. Job situation (type of work, supervisory level, tenure in the organization, variety, autonomy, job responsibility)
k. Other (please explain)

Use the above list of factors to answer Questions 44 to 55. For each question, identify the three most important factors in order of importance. If the factor you want is shown, indicate the letter only. However, if the factor you want is not shown, indicate "k" and explain your response in the space allowed. Please complete every question; use "a" when "none" is applicable.

If you have made a geographic move, please list the factors which most influenced your decision to move.

44. Most important: _____

45. Second most important: _____

46. Third most important: _____

If you ever decided NOT TO APPLY for a position at another geographic location, please list the factors which most influenced your decision not to move.

47. Most important: _____

48. Second most important: _____

49. Third most important: _____

Assume you are offered a job today at another geographic location and you DECIDE TO MOVE, what factors do you think would most influence your decision?

50. Most important: _____

51. Second most important: _____

52. Third most important: _____

Assume you are offered a job today at another geographic location and you decide NOT TO MOVE, what factors do you think would most influence your decision?

53. Most important: _____

54. Second most important: _____

55. Third most important: _____

PART III

The following questions are designed to gather your opinions about current Air Force programs involving geographic mobility. Use the scale shown to answer questions 56 to 61. Circle the letter which most closely matches your opinion and then explain your answer. Feel free to include extra pages if necessary.

a. Strongly Disagree	b. Disagree	c. Neither Agree Nor Disagree	d. Agree	e. Strongly Agree

56. Geographic mobility is important in providing the Air Force with the best qualified personnel.

a. b. c. d. e.

57. Geographic mobility is necessary to adequately prepare civilian logisticians for senior level management positions.

a. b. c. d. e.

58. It is possible to receive career broadening experience without being geographically mobile.

a. b. c. d. e.

59. Being geographically mobile has been beneficial to my career.

a. b. c. d. e.

60. Being geographically mobile will be beneficial to my career in the future.

a. b. c. d. e.

---

61. I believe I have a realistic opportunity for:

a. No further promotions
b. One more promotion
c. Two more promotions
d. Three more promotions
e. Four or more promotions

PART IV

All information you provide on the following questions will be kept strictly confidential.

62. Total years of federal service?

a. less than 5 years
b. 5 to 9 years
c. 10 to 14 years
d. 15 to 19 years
e. 20 to 24 years
f. 25 to 29 years
g. 30 to 34 years
h. 35 or more years

63. Number of years of previous military service?

a. none
b. less than 5 years
c. 5 to 9 years
d. 10 to 14 years
e. 15 to 19 years
f. 20 to 24 years
g. 25 to 29 years
h. 30 to 34 years
i. 35 or more years

64. Your current grade level?

a. GS/GM-11
b. GS/GM-12
c. GS/GM-13
d. GS/GM-14
e. GS/GM-15

65. The Logistics Civilian Career Enhancement Program identifies the following Logistics Center Group Functions. Please circle the letter of the function which most closely represents the nature of the job you are currently performing.

a. Transportation
b. Supply & Distribution
c. Maintenance & Production Mgmt
d. Logistics Management
e. Program Management
f. Acquisition Management
g. Other _____

66. Your gender?

a. Male
b. Female

67. Your housing status?

a. Rent
b. Own Home

68. Your age?

a. less than 35 years
b. 36 to 46 years
c. 46 to 55 years
d. more than 55 years

69. Your marital status?

a. Not married
b. Married

70. Is your spouse employed outside the home?

a. Not applicable
b. No
c. Yes

71. Would your spouse be willing to seek employment at another geographic location?

a. Not applicable
b. No
c. Yes

72. Your Job Title? _____

73. The first two letters of your office symbol? _____

This concludes the survey.
THANK YOU FOR YOUR PARTICIPATION.

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Senior military managers need the ability to move manpower resources where they are most needed. Senior Air Force managers have voiced concern that the civilian work force is becoming less mobile. The absence of a mobile civilian work force may inhibit and constrain the ability of Air Force leaders to efficiently employ public resources to accomplish the Air Force mission.

A four-phase research effort was designed to locate information about the mobility of civilian logisticians, to develop a means of gathering this information, and to present the data in a readily understood and useful manner. During Phase One, specific research objectives were developed to describe the extent of mobility of Air Force civilian logisticians, to describe the patterns of their mobility, and to identify the factors which influence their mobility decisions; and to solicit the opinions of civilian logisticians about the subject of geographic mobility. A complex search of the literature and government personnel data bases indicated that the required data was not available.

During Phase Two, a method for accomplishing the objectives was developed. A mailed survey questionnaire was determined to be the most economical means of gathering the required data. This questionnaire was developed, revised, and determined to be valid and reliable. The data collection plan included detailed plans for administering the questionnaire during Phase Three, and the measurement and display techniques which will be used during Phase Four to analyze and present the data.

The four phases represent a coordinated and linked research cycle. This research has developed the foundation for all four phases but has completed only Phases One and Two. Completion of Phases Three and Four will be accomplished and reported in An Analysis of the Status of the Factors Influencing Mobility of the Air Force Civilian Logistician, Part II.